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The Dental Digest

July 1930

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THE DENTAL DIGEST

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THE DENTAL DIGEST

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THE DENTAL DIGEST

VOLUME XXXVI

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The Occurrence of Calculus In the Salivary Glands and Their Ducts

By IRWIN ABEL, D.D.S., New York, N. Y.

Among the conditions which frequently confront the dentist is the formation of salivary calculus, and deposits on the teeth are noticed in most of the patients whom we examine. More rarely, however, calculus may occur in the salivary glands and their ducts, thus causing considerable discomfort to the patient. Before describing this condition I believe it is necessary to review the various theories on tartar formation.

TARTAR FORMATION

Burchard found that deposits on the teeth were composed of a calcium phosphate with a small amount of calcium carbonate combined with organic matter. He also stated that the lime salts were held in suspension in the saliva and were precipitated under certain unexplained conditions.

Talbott stated that tartar was an excess of lime in the blood, which was excreted through the salivary glands.

Prinz advanced the theory that the formation of salivary calculus depended on three factors:

- (1) Presence of a supersaturated solution of lime in the saliva.
- (2) Stagnation of the saliva.
- (3) An inorganic foreign substance with a rough surface which serves as a nucleus for the attachment of the calculus.

CALCULUS IN THE GLANDS

Salivary calculus or stones may occur in the gland proper or along some part of the gland duct. Erdman* reported five cases of salivary calculus in the salivary ducts. He also stated that only 350 cases have been reported in the literature. However, it is possible that there have been more cases not reported.

Wharton's duct is the most frequent site for the formation of salivary stones. Probably two-thirds of all the cases involve Wharton's duct or the submaxillary gland, 20% involve Stensen's duct or the parotid gland, and a very small number involve the sublingual gland.

Schu states that the condition is found mostly in the middle-aged and affects men more than women. He reports cases as follows: males 281, females 89.

The stones vary in size, color, shape and number. A. H. Noehren, of Buffalo, reports the removal of fourteen stones from the buccal portion of the parotid duct. If the stones are situated in the duct, they are elongated in shape. They may be tiny grains or weigh as much as 20 grams.

* *Journal of the American Medical Association*, May 22, 1920.

ETIOLOGY

Any interference with the normal flow of saliva may cause trouble. One case reported is that of a student who always rested his left cheek on his left hand while studying, thus causing pressure and a resulting stone in the duct.

A congenital case also has been reported.

Another case is that of a neurotic woman who was in the habit of biting her cheek at a point close to the opening into Stensen's duct, causing injury and a resulting inflammation. Mumps also may cause this condition.

It is generally believed that the deposits occur in the presence of bacteria and foreign bodies or during inflammatory processes. Saliva under normal conditions is excreted through the ducts into the mouth. If this action is interfered with in any way by injury or the presence of a foreign body, an inflammatory condition results. This is followed by the presence of leukocytes or desquamated epithelium, which acts as a "stop" to the physiological flow of saliva. As this obstruction continues, lime salts are deposited around the nucleus of foreign bodies, thereby forming larger deposits. Sometimes a stone is not formed, but the irritation set up by the trauma or the presence of foreign bodies may result in the pathological condition known as ranula. At other times the formation of a salivary stone may be associated with a ranula.

SYMPTOMS OF SALIVARY STONES

The clinical sign is swelling in the region involved. A characteristic symptom is that the swelling increases during the eating of meals. There is also

a purulent discharge from the stoma of the duct in question. A very careful examination of this opening shows enlargement and inflammation. Also, there may be intense pain, difficult deglutition and slight trismus. Sometimes the pain starts from the affected area and runs up to the ear on the same side. Occasionally, on the introduction of a fine probe into the duct a slight resistance is felt and there is a "grating" sound.

DIAGNOSIS

Of course a positive diagnosis is made possible by means of the roentgenogram. This is best accomplished by directing the rays through the soft tissues of the suspected area. In the submaxillary region a large dental film is placed horizontally between the teeth as far back as possible and the rays directed from beneath the chin. Sometimes, due to faulty technic, several exposures are necessary before the stones are detected. An abscess of the affected gland may be present and associated with necrosis. In some cases a fistula has already formed.

DIFFERENTIAL DIAGNOSIS

This condition must be differentiated from an alveolar abscess with enlarged lymph nodes. Swellings may be due to inflammatory neoplasms.

In the parotid region swelling and inflammation may be due to mumps. This, however, clears up in about ten days.

A swelling in the anterior floor of the mouth beneath the tongue may be a ranula. This is a cystic tumor, blue-grey or reddish-grey in color. It is

usually tense and does not pit on pressure.

Ludwig's angina, enlarged lymph nodes, tuberculosis, syphilis and actinomycosis must be ruled out.

The literature reports a case of a physician's son who presented a large abscess pointing in the submental space. The x-ray was negative; the teeth were negative. The abscess was incised at the point of fluctuation and the pus drained. This was followed by a mucoid discharge from the incision. When the scab formed, this fluid was forced back along the floor of the mouth, causing edema and swelling in this area. As soon as the scab was removed and the fluid was evacuated, these symptoms subsided. No calculus was found by roentgenograms. A month later the patient returned with a small swelling at the site of the previous incision. This was again lanced and a serous pus evacuated. When examined in a basin, a few sulphurlike granules were noted. Actinomycosis was suspected and confirmed by microscopic examination.

TREATMENT

When the patient is first seen, it is wise to institute some palliative treatment in the form of antiseptic washes to be used frequently. In addition, cold compresses should be applied to any swelling on the face. The duct may be irrigated with saline solutions. When the acute local symptoms have subsided, a fine curet may be inserted through the duct to the stone and the entire obstruction removed intact or broken up into small pieces.

If the stone is found to be of a large size, it must be removed surgically. If it is situated very deep or when there is

an external fistula, the incision must be made externally.

It is better to operate internally whenever possible. An incision is made in the mucous membrane over the location of the calculus. As little tissue as possible should be incised to avoid injury to important nerves or to the duct itself.

When sufficiently exposed the stone is disengaged from its surrounding tissues and removed. The edges of the wound are then brought together with a single suture so as not to close the wound entirely, thus providing for drainage.

In the submaxillary region the structures apt to be involved are the lingual nerve and the hypoglossal nerve. The lingual nerve runs from behind forward over the duct. Beneath the duct the hypoglossal nerve runs forward. Both cross the duct in order to reach the side of the tongue. The operation must be performed with skillful dissection so as to avoid possible injury to these structures.

POST-OPERATIVE TREATMENT

Antiseptic washes should be used frequently and the patient must be kept on a liquid diet for a few days. It is best to probe into the duct twice a week until there is a normal flow of saliva from the duct.

CASE REPORT

Mr. H. W., aged 29, presented at the dental clinic with severe pain and swelling in the left submaxillary region. This acute condition had started a week before the patient visited the clinic. There was no history of recent toothache or sore throat. The patient had

great difficulty whenever he attempted to swallow. The condition became more acute during meals.

Examination showed that his teeth were in perfect condition. The patient had had a similar condition four weeks previous to his visit to the clinic, but it had subsided. History revealed that the swelling had come at irregular intervals for the past five years.

On massaging the submaxillary gland a thick, slightly mucopurulent fluid escaped from the opening of Wharton's duct. A clinical diagnosis of stone in Wharton's duct was made and x-ray examinations were advised. Meanwhile the patient was given palliative treatment for the swelling. The next day the patient returned to the clinic acutely ill. His temperature was 102.2°, and he was at once admitted to the hospital. The clinical diagnosis was confirmed by the x-ray examination of the previous day. A blood examination revealed a positive Wassermann.

The patient was given additional

treatments with cold compresses and hot alkaline mouthwashes. He proceeded to improve and the next day the duct was probed and pus evacuated. In addition, a small calculus was "milked" out of the duct. The swelling then subsided, the pain disappeared, and the patient was discharged from the hospital in a few days.

CONCLUSION

From the preceding statements it can be readily understood that although salivary stones are not an ordinary occurrence, it is necessary for the dentist to make an early diagnosis of this condition whenever the occasion arises. He should be able also to differentiate this condition from others that are due to dental pathology.

In addition, the dentist should immediately undertake treatments to relieve the acute symptoms, but if an operation becomes necessary, the patient should be referred to a competent surgeon.

10 West Fordham Road.



The Recovery of the "Lost Dimension"

By FRANK H. McKEVITT, D.D.S., San Francisco, Cal.

When natural teeth are present and in good position in the mouth, we have an opportunity for recording dimensions that prove invaluable to the prosthodontist. A practical means of taking such a record is by use of a study cast, before the extraction of the teeth, but when teeth are extracted without the formality of casts having been made, the opportunity for obtaining dimensions that originally existed is in most instances irrevocably lost.

It is possible by modern methods, for example, to redetermine the downward inclination of the condyle path in edentulous cases. It is likewise a simple matter to record lateral and inward lateral path movements of the mandible in the horizontal plane in such cases and to reproduce them in their original dimensions, where no study cast record is available. But to reproduce accurately, without a study cast, the interalveolar crest line, which is the vertical distance between the crests of the mandibular and maxillary ridges, exactly as it was when the teeth were in situ, is well-nigh impossible. We must of necessity hazard a guess. The variation of the length of this line is from 14 to 24 mm. in extreme cases.*

Add to the foregoing description of the interalveolar crest line the overbite dimension, which is the vertical distance from the incisal edges of the mandibular incisors to the incisal edges of the

maxillary incisors. This also is subject to a marked variation in length. Now, couple with the two dimensions just described the overjet dimension, which in contradistinction to the overbite is the horizontal distance from the labial surfaces of the mandibular incisors at the median line to the labial surfaces of the maxillary incisors, a distance varying from 3 to 10 mm., and you will have a composite of the three dimensions that make up the so-called *lost dimension*. It is properly named, particularly so when no effort has been made to record it.

The importance of this lost dimension becomes evident to the student when he learns that it was from the natural teeth in position that Gysi computed the downward inclination of the incisor path. From this downward inclination of the incisor path and the recorded downward inclination of the condyle path, in conjunction with the occlusal plane, was obtained the vertical location of the opening axis of the mandible. This is an integral feature of the adaptable articulator.

The vertical location of this axis determines the anteroposterior inclination of the curve of Spee, whose function is to maintain the occlusal surfaces of the mandibular teeth at right angles to the line of closure of the mandible.* As this feature is important enough to incorporate into the building of an

* *Special Teeth for Cross-Bite Cases*, by Alfred Gysi, D.D.S., *THE DENTAL DIGEST*, January, February, March, 1928.

* *Some Essentials to Masticating Efficiency*, by Alfred Gysi, D.D.S., *THE DENTAL DIGEST*, November, December, 1920; January, 1921.

adaptable articulator, the *lost dimension* is worthy of consideration when it is so easily recoverable.

THE INTERVALVEOLAR CREST LINE

The intervalveolar-crest-line dimension, if employed, insures the proper vertical location of central occlusion as it is differentiated from its horizontal location in the occlusal plane. The

position. Its importance in the arrangement of your own natural teeth will be manifested if you thrust the mandible forward, bring the maxillary and mandibular incisors together, and return it without further contact to the position of central occlusion.

THE OVERBITE DIMENSION

The overbite dimension will be mani-

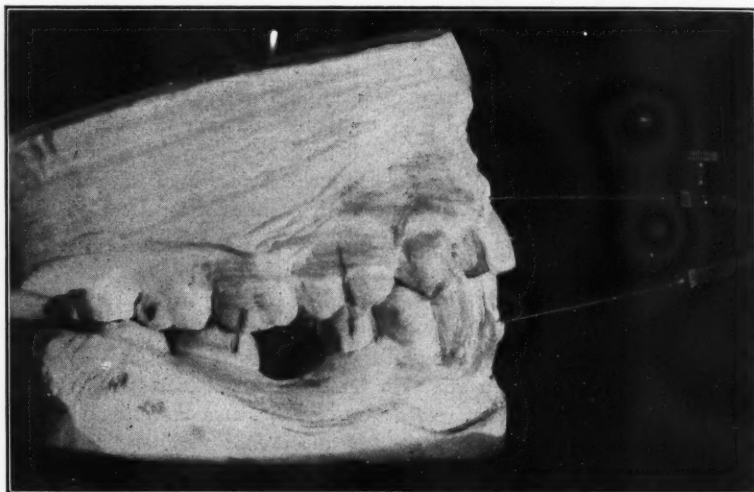


Fig. 1

Casts of teeth before extracting. The calipers show the intervalveolar crest line to be 18 mm.

actual height of the intervalveolar crest line is thus maintained for the proper division of the combined heights of the two occlusion rims as they relate to the length of this line.

THE OVERJET DIMENSION

The overjet dimension, when properly employed in the arrangement of artificial teeth, insures stability of the dentures in the incising-bite balancing

position. When the mandible leaves the position of central occlusion, it moves downward and forward until the limit of this excursion is reached. It then moves upward until the incisal edges of the maxillary and mandibular incisors come into contact and then upward and backward with the teeth remaining in contact until the position of central occlusion is reached.

To recover the intervalveolar-crest-line dimension from the cast, measure with

a compass in millimeters the distance from the gingival margin of the maxillary incisors in the median line to a similar point on the mandibular cast (Fig. 1). To transfer this measurement to the occlusal rims, use outside calipers to measure the interalveolar crest line as it is given in the occlusion rims, when

respond (Figs. 2-3). To transfer the overjet from the casts to the occlusion rims, use a millimeter gauge and check the rims until they correspond with the same dimensions on the casts (Figs. 4-5).

After the interalveolar - crest - line dimension and the overjet dimension

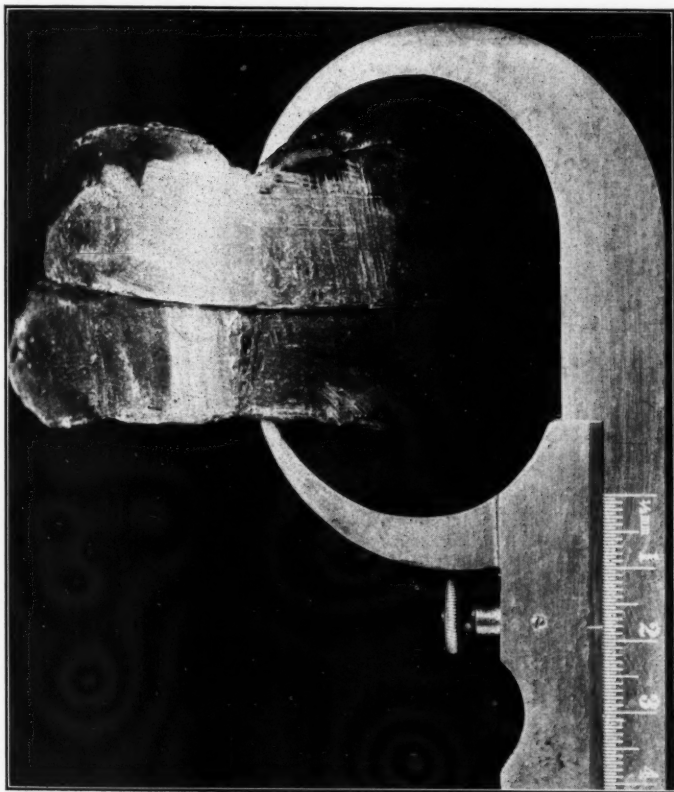


Fig. 2

When the bite rims are being established, their combined heights should be 18 mm., as shown here.

this height is being established, and check with your compass points as a control until the two dimensions corre-

have been obtained, the overbite dimension will be restored automatically when the lower incisors, which are the last of

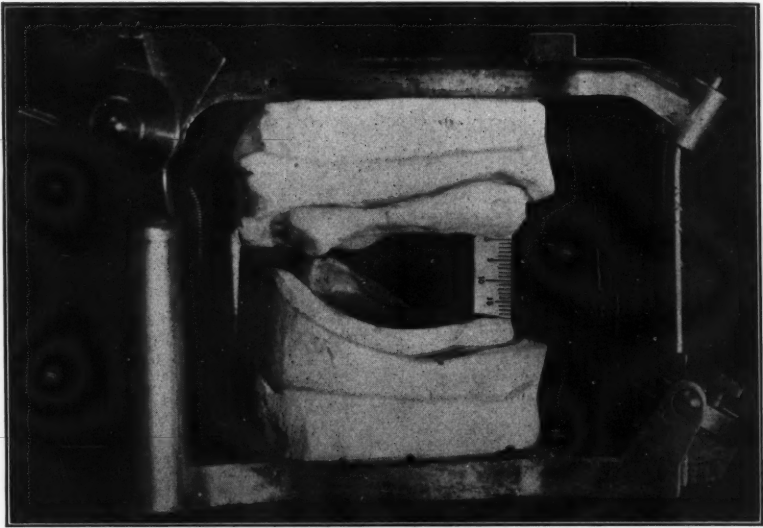


Fig. 3

When the occlusion rims are mounted on the articulator, the height of the edentulous inter-alveolar crest line also is 18 mm.

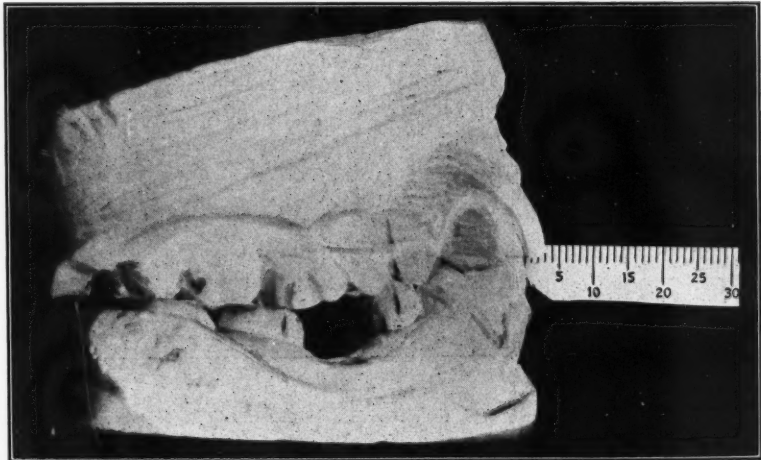


Fig. 4

The overjet dimension of 3 mm. is taken from the casts in the manner shown here.

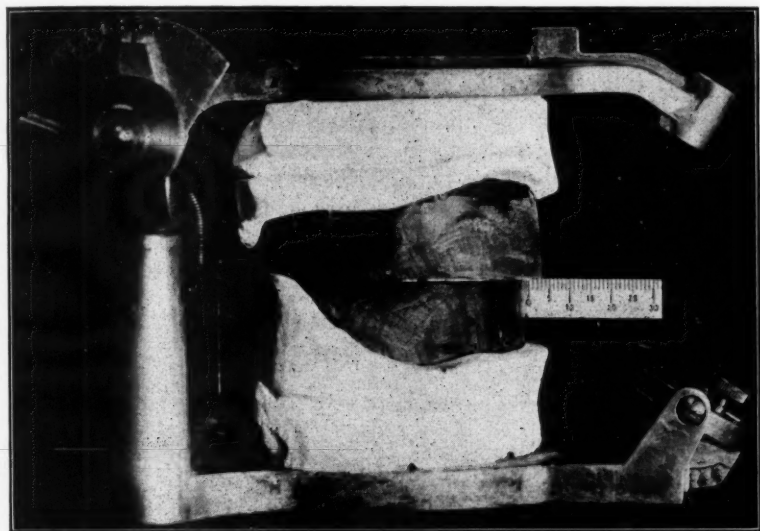


Fig. 5

While the facial contour is being reestablished, the overjet dimension of 3 mm. is incorporated in the occlusion rims for esthetic and mechanical reasons.

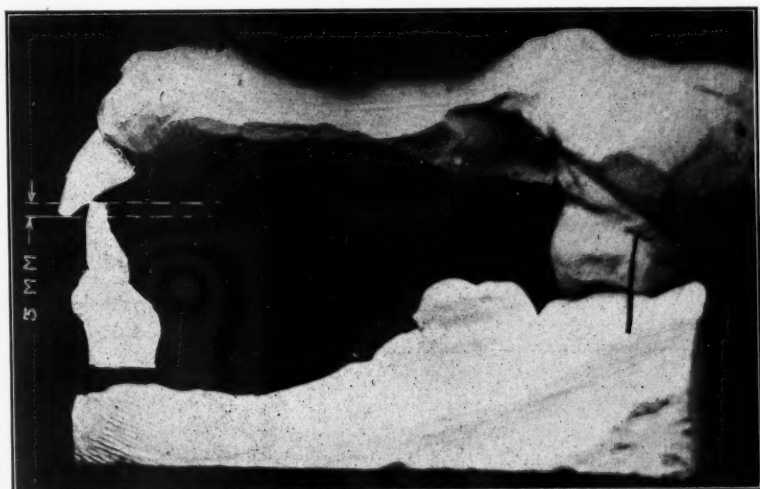


Fig. 6

The overbite dimension is reestablished at the time the artificial mandibular anterior teeth are arranged. When natural teeth are extracted, this component dimension is never accurately restored artificially.

the teeth to be arranged, are set for the balanced incising-bite position (Fig. 6).

Let us assume the procedure described above to be the standard for such a purpose. Unfortunately, all casts do not have anterior teeth and do not conform to this ideal. Where there are deviations from this standard,

combined heights for the recovery of one of the components of the *lost dimension*; i. e., the interalveolar crest line. While the overjet and overbite dimensions still remain lost, a better opportunity exists to approximate them.

The foregoing is a method that is simple and reliable and, if followed,

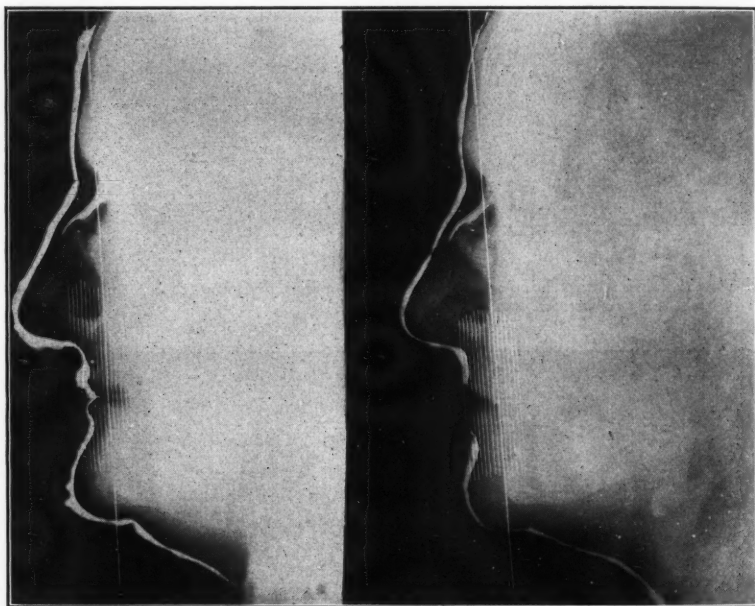


Fig. 7

These profile views illustrate the value of casts from an esthetic standpoint. The features are automatically restored when the *lost dimension* has been recovered.

measure the height of a molar that is in good condition and conform the corresponding rim height to it. Where any two teeth have retained their proper apposition to each other, measure their

insures good phonetics, ample tongue room, esthetics and masticating efficiency (Fig. 7).

The existence of these dimensions when established cannot be ignored by

prosthodontists, and particularly by orthodontists. They account for the fact that it is difficult for orthodontists to keep the anterior teeth from reverting to typal alignments that have been established by the habitual masticating movements of the patient, despite any

preconceived notion of what the ideal alignment for the anterior teeth should be.*

* When the occlusion rims have been established, the Gothic arch tracing becomes the concluding step.

291 Geary Street



[SINUSITIS]

Chronic maxillary sinusitis may be due to a protracted acute infection or to an infection of related teeth or a polypoid degeneration of its membrane. In this form there are always permanent changes in the mucosa. The unilateral nasal discharge present may be intermittent or continuous. It varies from a thin cloudy material to thick, yellow, opaque pus. Again, I wish to caution against mistaking such findings alone for a chronic maxillary sinusitis. The underlying cause may be an unrecognized frontal sinus discharge into the former cavity. And, as stated above, in such a case it may act as a reservoir for months and its mucous membrane remain normal. In making a diagnosis, the history is all important. This should be supplemented by transillumination and the use of the roentgen ray. The two latter, while serving as aids, are very valuable. Cases arise from time to time in which there is no discharge, but there is a shadow both by transillumination and in the roentgenogram. But, in such a case, the return flow on lavage is clean, and there is probably not much danger that infection is present because there is no discharge.

—SCHULTZ.

Ethyl Chlorid As a General Anesthetic*

By JOSEPH S. STOVIN, Ph.B., M.D., New York, N. Y.

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Anesthetics are divided into two broad groups, general and local. By *general* anesthesia we mean the narcosis of the entire central nervous system brought about by the entrance of the anesthetizing substance into the general circulation. *Local* anesthesia, as the name implies, affects a localized area by the direct action of the agent on the terminal nerve endings. Ethyl chlorid, the drug which we shall have under consideration, has been used both as a general and as a local anesthetic, but we shall confine our remarks to its use as a general anesthetizing agent.

Flagg subdivides general anesthesia into two classes, (1) complete and (2) incomplete.

COMPLETE ANESTHESIA

There are three distinct stages in complete anesthesia, as follows:

1. Stage of induction, which may be divided into the—
 - a. Period of excitement, cerebral and muscular.
 - b. Period of rigidity.
 - c. Period of relaxation.
2. Stage of maintenance.
3. Stage of recovery, with—
 - a. Return of the reflexes.
 - b. Return to consciousness.

INCOMPLETE OR PARTIAL ANESTHESIA

In incomplete or partial anesthesia the patient is carried through the stage of induction (with the periods of excitement and rigidity) as far as the relaxation period. There is, however, no general relaxation and no stage of maintenance, the patient immediately entering the third stage, that of recovery. Frequently, in dentistry and in otology, operations can be performed in very short periods of time and complete relaxation is not required. For such operations incomplete or partial anesthesia suffices and ethyl chlorid is often the anesthetic of choice.

In passing, I wish to say that we do not advocate ethyl chlorid for complete general anesthesia in operations of long duration, for the margin of safety between the amount of the drug necessary to give complete relaxation and the amount producing toxicity is too narrow. And, furthermore, ether is the ideal anesthetic for prolonged anesthesia.

HISTORY OF ETHYL CHLORID

Before discussing the pros and cons of ethyl chlorid as an anesthetic for the production of partial anesthesia in short operations I shall tell you briefly something about its history. While it has been adopted as a general anesthetic only comparatively recently (that is, about 1900), it was recognized as such in 1847, about the time ether was first

* Read before the Society for the Advancement of Anesthesia in Dentistry, New York, N. Y., April 21, 1930.

used for anesthesia. Benjamin Ward Richardson and Snow demonstrated the value of ethyl chlorid as an anesthetic in 1852. The "Glasgow Committee" of the British Medical Association examined its action on the lower animals and in 1880 reported it unsuited for use on humans, their chief objections being that it produced convulsions and respiratory failure. Its restoration to favor was due largely to the observations of Larisen and Meising, who, while employing it as a local anesthetic, found it satisfactory for general use. Lotheisser used it as a general anesthetic, and it is to him that we owe much of our knowledge of this agent.

CHEMICAL COMPOSITION

The chemical formula of ethyl chlorid is C_2H_5Cl . It is made from ethyl alcohol, which is C_2H_5OH , the Cl radical being substituted for the OH. It is prepared as follows: Dried hydrochloric acid is passed into a flask containing absolute alcohol to which powdered anhydrous zinc chlorid has been added. The flask is fitted with a reflux condenser, which takes up the gaseous ethyl chlorid. It is then washed and collected.

Ethyl chlorid is a gas at ordinary temperature and pressure, but when slightly compressed becomes a colorless, volatile liquid. It has a distinctive odor. Its specific gravity is 0.921. The boiling point is $12.5^{\circ}C$. It is very inflammable.

EFFECT OF ETHYL CHLORID

The effect of ethyl chlorid is as follows:

Early in the inhalation the pulse and respiration become rapid. When uncon-

sciousness comes, they return to normal. The anesthetic state is induced very rapidly, especially so when air is partially excluded. When the dosage is moderate and air is not limited, there is no appreciable fall in the blood-pressure. Complete muscular relaxation does not occur; in many cases the conjunctival reflex is not completely abolished, and often the pupils do not dilate. The anesthetic condition lasts from one to three minutes, and it is usually recovered from rapidly, often without vomiting or unpleasant after-effects.

A large dose, rapidly given, may cause cessation of respiration and spasm of the diaphragm. Concentrated vapor administered for a considerable time lowers the blood-pressure (probably by causing a dilatation of the peripheral vessels), induces cyanosis and asphyxia, and eventually causes death by respiratory failure.

Ethyl chlorid is eliminated chiefly through the lungs. The prolonged use of it may result in elimination through the kidneys with an accompanying albuminuria.

CLINICAL USE

And now we come to the discussion of the clinical use of the drug. As I have said before, its chief field of usefulness is in operations of short duration (that is, from three to five minutes), where muscular relaxation is not required, as in the extraction of teeth, the removal of adenoids or the opening of an abscess of the ear. It is also frequently used as a preliminary to ether because of its pleasant odor and the rapidity with which it induces unconsciousness.

Everything should be in readiness for the operation before the induction is commenced. This is very important, for one of the most noteworthy features of this drug is the speed with which it puts the patient to sleep and the speed with which he recovers consciousness as soon as the administration is stopped.

The anesthetic may be given with the patient sitting or reclining, but the recumbent position is preferable. The patient's clothing should be loose, and there must be no interference with breathing.

In dental work a mouth prop should be inserted before starting, because there may be a spasm of the masseter muscles. If the patient is a child who will not permit the introduction of the mouth prop, it is sound practice to place a large gauze sponge between the teeth. This will stay there with the aid of the mask and permit the dental operator to enter the mouth, while the child is asleep, unhampered by the closure of the jaws.

The anesthetic may be administered by the open or the closed method. Many anesthetists use the latter, giving it in a closed apparatus, the patient respiring into and from a rubber bag. However, I prefer the open method because of its greater safety. (I said above, you will remember, that exclusion of air increases the danger to respiration and circulation.) By this method the ethyl chlorid is sprayed or dropped from its special glass or metal container upon a mask covered by six or eight layers of gauze, so that the drug will not evaporate too quickly in the air. Dropping is preferred to spraying by some, because there is less freezing of the

mask and, therefore, better control of the anesthetic.

As the drug is sprayed or dropped, consciousness is lost with surprising rapidity, usually within a minute. The anesthetic should not be pushed until the corneal reflex is lost and wide dilatation of the pupil occurs. All that is required is that the respirations be deep and involuntary and muscular excitement be absent. As soon as the anesthetic state is obtained, the administration is stopped and the operation performed with no waste of time. If the patient recovers too rapidly for the surgeon's purpose, more ethyl chlorid can be given, but the consensus of opinion is that it should not be used when the operation is expected to exceed five minutes.

Usually no more than 5 c.c. of ethyl chlorid are given, except to alcoholics. For children 3 c.c. are in most cases sufficient.

As recovery takes place, the respirations become slower and more shallow and the patient awakens almost immediately. For a few seconds he may be dazed and lack muscular control, but this is soon followed by complete restoration to consciousness. Occasionally there is nausea and vomiting.

STAGES OF ETHYL CHLORID ANESTHESIA

Gwathmey has divided ethyl chlorid anesthesia into four stages, as follows:

- (1) *The analgesic stage.* This commences after two or three breaths of ethyl chlorid and lasts about 30 seconds. Stertor has not appeared yet. An abscess may be opened quickly during this period.

- (2) *The true anesthetic stage.* This lasts from one to three minutes after removing the mask from the face. Occasionally this stage is deepened after the removal, owing to absorption of ethyl chlorid from the lower air passages.
- (3) *Again a stage of analgesia,* lasting from 30 to 40 seconds, in which no sensation is felt, but in which the patient may talk and move slightly.
- (4) *Overdose.* The signs are similar to those produced by other anesthetics. They are unusually widely dilated pupils, pallor, intermittent respirations or gasping for breath.

DANGERS FROM ETHYL CHLORID

The dangers from the use of ethyl chlorid are due, chiefly, to interference with respiration and, secondarily, to circulation. Overstimulation of the respiratory center, giving rapid, labored breathing followed by cessation, may be alarming but is seldom fatal. If it occurs, simply remove the mask, lower the head and use artificial respiration. Cyanosis, faintness or syncope may occur, but these are usually due to too prolonged administration. Collateral circumstances may interfere with respiration, such as swallowing the tongue or pressure upon the tongue, especially during the extraction of mandibular teeth. Aspiration of blood and mucous may cause cyanosis, pallor, and rapid, shallow or labored breathing. If the tongue has fallen back, pull it out with tongue forceps. Be sure that the blood and other secretions are sucked out,

and, if necessary, give stimulants and commence artificial respiration.

It is extremely difficult to arrive at an accurate estimate of the safety of ethyl chlorid. Ware collected a series of 12,436 cases and reports one death. Seitz places the death rate at one in 16,000. Lotheisser, in a study of 2500 cases of anesthesia by this agent, reports one death. Miller estimates that there is one death in 13,365 administrations. It is perhaps safer than chloroform, not nearly so safe as nitrous oxid, and not so safe as ether.

INDICATIONS FOR USE

As stated above, ethyl chlorid is the anesthetic indicated and may be used to advantage when the operation is to be of short duration and when general relaxation is not required.

Generally speaking, we use ethyl chlorid for those operations for which nitrous oxid might be used. It has certain advantages over nitrous oxid, although the latter is considered the safer drug. Among these advantages are its portability and the ease with which it may be given. All one needs is a container of ethyl chlorid and a mask, which takes up very little space and may be conveniently carried in a physician's bag. Nitrous oxid, on the other hand, requires the use of special apparatus. Ethyl chlorid does not produce cyanosis, unless given for a long period of time. It is generally considered safer than nitrous oxid for children. It can be given to infants a few days old with reasonable safety. It should not replace nitrous oxid as a routine in dental surgery, except possibly in children. Some patients have an idiosyncrasy for nitrous oxid; they be-

come cyanosed and excited. For these individuals use ethyl chlorid.

CONTRA-INDICATIONS

Among the contra-indications to the use of ethyl chlorid are lung disease and any respiratory obstruction. However, patients with lung complications stand it better than they do ether. This is true also of nephritic patients. Alcoholics take it very poorly, usually becoming extremely violent. When there is chronic degenerative disease of the heart with feeble pulse, it should not be used. In occasional cases it is almost impossible to produce anesthesia, even when large doses are used.

SUMMARY OF ADVANTAGES

To summarize the advantages in the use of ethyl chlorid as a general anesthetic—it is an inexpensive, portable agent that is safe when properly admin-

istered, that is, when it is given with a sufficient supply of air and over only a short space of time. Its rapidity of action commends it, especially for use with children. Its pleasant odor and quick action induce many anesthetists to give it as a preliminary to ether in prolonged operations. Another advantage is that it generally causes no excitement. Furthermore, when the anesthetic is discontinued, there is rapid return to consciousness with no after-effects except for occasional nausea and vomiting.

One word, in closing, is that there is practically no danger when the drug is given for a short time. To avoid overdosage, the administration should be stopped as soon as consciousness is lost, and, even when there is some interference with respiration, the patient's response to treatment usually occurs readily.

160 West 87th Street

DISCUSSION

M. Hillel Feldman, D.D.S., New York: I have invited to discuss Dr. Stovin's paper, to open the discussion, a gentleman who is a specialist in the heart. I take pleasure in presenting Dr. I. R. Juster, Chief of the Cardiac Clinic of Greenwich House, a member of the New York Heart Committee, Assistant Attendant Cardiologist at the City Hospital, Lecturer and Assistant Attending Cardiologist at the Park Clinic Hospital, and Research Director of the Industrial Health Cardiac Shop of New York.

I. R. Juster, M.D., New York: Mr. Chairman, this is a rather unusual thing for a cardiologist to discuss. But

apparently there is one phase that seems to worry you, and that is the cardiac aspect in general anesthesia.

I notice in several of your communications that certain things have been referred to which probably are all Greek to you, and I am going to try to explain some few things about the heart so as to have you understand what effect anesthesia might have on the heart.

The heart is divided into two main parts, the auricles and the ventricles. It happens also that the heart beats by itself, and it has what is known as a pace-maker, which is known as the sino-auricular node. It was termed the

pace-maker by Sir Thomas Lewis. It is highly specialized tissue and is supposed to be the beginning of the conduction system in the heart.

The impulse arises at the point where the blood enters the heart from the venous side, and through some system which we don't quite understand—we do not know of any particular specialized tissue there—it gets to the sinoauricular node. Beneath the sinoauricular node is the Bundle of His, and beneath that the highly specialized tissue subdivides into two parts known as the right and left bundles, all highly specialized tissue, and the impulse travels through that place. Then it goes into the fine terminations known as the fibers of Purkinje, which are the fine ramifications of this nervous tissue.

The importance of this conduction system is the importance of some of the things that have been referred to this evening. When the impulse arises at this point and then travels through some system of its own which we do not quite understand and gets to the auriculoventricular node, travels through the Bundle of His, subdivides and produces a uniform contraction of the heart, the right and left ventricles contract simultaneously. One chamber does not beat faster than the other, that is, when the system is in perfect tone. The auricles also beat simultaneously. There is no differentiation between the beating of the right and the left auricle.

Anything that affects the heart can affect the muscle directly or it can effect the conduction system, and, in view of the fact that it is highly specialized tissue, if any toxin gets in there, it usually affects the highly specialized tissue before it does the general tissue.

Take nitrous oxid. The principle that it works on is really an anoxemia. You introduce a foreign gas into the system. It changes the person from consciousness to unconsciousness. It stands to reason that you have done something to that person, and that that effect will manifest itself, and you do get electrocardiographic changes, but what of it? It is no more than when we give digitalis. Digitalis happens to be the drug that we use in heart disease when there is a decompensation and the heart gives way. In order to bring the compensation back, you give digitalis. You produce a change in the heart which manifests itself on the electrocardiogram in a way that is analogous to a very severe form of heart disease. Naturally, giving digitalis, you would say that it produces a bad effect on the heart. It is just a temporary effect. If you stop the digitalis, this effect releases itself. No matter how much you have given, no matter how long you have given it, the effect will release itself after the drug is stopped. And the same is true with anything you introduce into the system, whether it is ethyl chlorid, nitrous oxid, ether, or anything else.

Carbon-monoxid poisoning is quite similar to nitrous-oxid poisoning, we will say. You give nitrous oxid, and it produces an anoxemia. It removes the oxygen from the blood. That produces its effect on the heart, produces its effect on the general nervous system, and in that way you get the desired effect of narcosis. With carbon monoxid it is the same.

Of course, it would be interesting to follow a series of cases with the electrocardiogram on the short anesthetics. I

just do not know how much effect you do get on the heart which would manifest itself on the electrocardiogram, but I imagine it would be quite a valuable experiment to try so as to clarify a situation which, when I got here this evening, seemed to be more favoring the opinion against the use of ethyl chlorid. I have known it to be used on children. I think it has been used for years. I know most tonsil operations at the City Hospital were induced (when I used to do them years ago) by ethyl chlorid. And I do not think that you people use any more ethyl chlorid than is actually used for tonsil work.

There is no doubt that there is an effect on the heart, but it is just like anything else. We all get the grippe; we call it a cold. What it is none of us really cares to find out. If we really tried to do blood cultures on everybody who had the grippe, it would not surprise me in the least if we found a high percentage of positive blood cultures in individuals walking around and recovering from the grippe. It is something that is there, and we just get over it. That is a very serious thing, a positive blood culture, in medicine. But when a person has an ordinary cold, we do not consider taking a blood culture to find out if there are organisms present.

Just think of an anesthetic as you would think of any drug. If you know how to use it, it is safe. If you do not know how to use it, it is dangerous. I don't care what the drug is that is used, if you are well acquainted with the particular idiosyncrasies of patients and what effect you expect to get, there is no particular danger. Some individuals can tolerate one thing more than another. That you can get by experience.

When it comes to patients with heart disease, I really think that ethyl chlorid should not be used. I personally would never permit any of my patients to have ethyl chlorid or nitrous oxid, that is, patients who have heart disease. Of course, you know there is one disease that children do have, that is, rheumatic heart disease. It is really a much more complicated disease than an ordinary murmur, and I certainly would not use any of those general anesthetics for children who have heart disease or, for that matter, for grown-ups who have it.

I think the anesthetic of choice is ether or a local anesthetic. I think that if you abide by those rules you will be fairly safe, and I do not believe that the percentage of fatalities would be any greater than you would get in the ordinary administration of any drug, and, after all, you must consider the use of ethyl chlorid the giving of a drug.

S. Seymour Levy, D.D.S., New York: I just want to know whether or not the technic I have been using for ethyl chlorid is along the right lines. In giving ethyl chlorid to children you remarked that even after the mask is removed the anesthesia continues sometimes into a still deeper stage. I found that out myself, and I anticipate my anesthesia. That is, I have seen ethyl chlorid given until the anesthetic stage has been reached. But I feel that if the ethyl chlorid is given in intermittent sprays, as it seems that the drop system is not used by dentists, it is too slow for them; if the intermittent spray is used and stopped, we find that after the spray is taken away the anesthesia stage is reached. I feel that that is a much safer method in giving the anesthesia to children.

Dr. Feldman: I might say that there is a point with reference to the technic of administration of ethyl chlorid which was not touched upon until now, that is, to know just when to discontinue the spray. I believe that if we follow the guide of asking the child to count and we discontinue the spray upon the cessation of the sound, we do not enter the danger stage. If the child refuses to count and is crying instead, I believe that that is a still safer guide for us, and, if we will discontinue the spray the moment the child ceases to cry, up to that point I believe that we are still on this side of the threshold of the danger zone of ethyl chlorid. That is the technic that was suggested to me by Dr. Gwathmey, and from the experience of some men to whom I have spoken and some friends of Dr. Stovin himself I feel that that technic is a safe one, when we consider the brevity of anesthesia which we require for our dental operations. I understand that a very busy aural surgeon told Dr. Stovin that he has administered the ethyl chlorid even for brief operations, such as the opening of an ear abscess, and several thousand cases for adults, without any ill-effects.

A. P. Sussman, D.D.S., Bayonne, N. J.: Nothing has been said in reference to the eugenol which I have heard of as used on the gauze with ethyl chlorid, and I thought I might mention that. Anesthesia under ethyl chlorid for dental use can be prolonged for still another half or three-quarters of a minute by using the gauze pack, with the eugenol and the ethyl chlorid, as a throat pack while working in the mouth, as is generally done under nitrous oxid.

Dr. Feldman: Personally I believe

that the use of a throat sponge or a throat pack saturated with ethyl chlorid is a dangerous procedure, because you are not able to limit your dosage. I believe that the technic of some men of introducing a sponge with ethyl chlorid into the mouth during the administration of nitrous oxid and oxygen is also a very dangerous procedure. Its advantage as is being claimed, to render a stimulated and athletic type of individual quickly anesthetized, is only an apparent advantage, and I believe that it ought to be discontinued; sooner or later there will be trouble.

Dr. Sussman: Mr. Chairman, I don't mean to use it in that way. I mean to use it in a general way, that is, over the nose as is generally used, without the pack, and then, if you wish to prolong the operation, use the pack with a slight amount of ethyl chlorid and eugenol.

Dr. Feldman: It depends upon how slight an amount.

Dr. Sussman: That depends on the patient.

Dr. Feldman: I think that is still a dangerous procedure. Once the mask has been removed, I believe that there should be no more ethyl chlorid administered. If the operation is to take more than a minute, some other anesthetic ought to be administered.

I communicated with Dr. Raisbeck with reference to the upright position in anesthesia, as I was told by a very prominent anesthetist that the position in which we operate is dangerous and is apt to produce at some time a sudden anemia of the brain. His reply is very interesting:

"The point concerning the patient's posture is very well taken. During anesthesia there is a drop in vasomotor tone

so that the distribution of blood is not under proper control. As a result the blood would tend to fall from the upper part of the body down to the abdomen and the legs. The vessels of the abdomen, when relaxed, are able to hold all the blood in the body, so in this sense we may say that the patient bleeds into his own abdomen. Incidentally, when a patient faints, we have him lean forward with the head between the knees and thus compress the abdomen and make an effort to press the blood back to higher levels. This very often can be done more quickly than by laying the patient out flat on the floor.

"Whether the cerebral anemia which might result could be a cause of death is an open question. The brain cannot be without blood for more than a few seconds. When the heart stops in complete block, we usually expect unconsciousness if the cerebral circulation fails for more than 12 to 15 seconds. If the patient is already under an anesthetic, it is impossible of course to know when he is unconscious on account of cerebral anemia, as he is already unconscious on account of the anesthetic. . . .

"If you take the common Hutch rabbit and hold him up by the ears for a few minutes, he will become unconscious. His abdominal muscles are soft, the belly balloons out, and the blood accumulates in the vessels of the abdomen. This is exactly the same mechanism. I do not think that the animal would die under the circumstances, although this might be a possibility if he were suspended for a very long time. As a rule, the animal comes to as soon as you lay him on the ground or at least comes to within a few moments.

"It would be a distinct improvement in technic if your anesthesia could be induced in the horizontal position and maintained in that position. An added problem comes up concerning the swallowing of blood and the possible dangers of lung abscess. This danger has, I believe, been exaggerated. When lung abscess occurs after tonsil operations, the impression is gaining ground that the infection gets to the lung by the blood stream rather than by direct aspiration, although opinions are divided on this point. At all events, general anesthesia for the removal of tonsils in the prone position is a common routine without any accidents from lung abscess over long series of cases.

"Your dental chairs are so arranged, I believe, that the patient can be thrown way back. If you could arrange your technic as to method of grasping the tooth, etc., so as to keep the patient in the prone position, it certainly would be an advantage. I should not care to go so far as to say that the erect position is responsible for death in the rare cases that go bad, but it might very well be a contributing factor.

"If the fatalities in anesthesia occur during the first few moments, would it not be good technic to induce anesthesia in the recumbent position, get the patient well under and keep him there for a few minutes before beginning work? In that way you could get past the dangerous early period. With the use of gas-oxygen, or even ethylene, the fact that the anesthesia has lasted a few minutes longer would not make any real difference in regard to shock, nausea, or other post-anesthesia complications.

"Another point—in old cardiorenal

cases, or in any with a subnormal circulation, I believe it is good practice to give the patient a few minutes of straight oxygen with 5% CO₂ for a minute or two after the anesthesia. As he comes to, you might explain what you are doing so that he will not think he is being kept asleep. This might be given after the first inspection to see that he is not bleeding. I believe that this oxygen-CO₂ administration avoids headache and tends to help the heart get over the strain of the operation, if any such strain may have occurred."

With reference to the subject matter of this evening I wrote to Dr. Yandell Henderson of the Department of Applied Physiology at Yale and to Dr. John S. Lundy at the Mayo Clinic. Dr. Lundy writes me:

"In answer to your letter of April 12, asking my opinion as to the danger of ethyl chlorid, it seems to me that the danger of ethyl chlorid is the narrow margin of safety between the anesthetic dose and the fatal dose, and the narrow margin of safety between the paralysis of respiration and the failure of the heart. I cannot say that it is safer with children than with adults, although in my experience I have had no difficulty with it in either group. So far as I know, ethyl chlorid does not produce more brain anemia than other anesthetic agents.

"I will be greatly interested in the problem which you are attempting to solve and hope that I may be informed of your conclusions."

Dr. Henderson writes: "I have had no great experience with ethyl chlorid. But, as I understand it, the principal objection is that, like chloroform but in less degree, ethyl chlorid combined with

excitement or with the use of adrenalin may induce delirium of the heart with fibrillation of the ventricle and death."

His postscript, written in long hand, is more significant than the letter: "The trouble comes in *light* anesthesia."

Light anesthetics are what we are using when we do use ethyl chlorid for dentistry.

In presenting this evening the subject of ethyl chlorid I have been interested not so much in having ethyl chlorid endorsed to its fullest extent by the essayist or by the discussor as to find out just wherein ethyl chlorid is dangerous, and to just what extent we can use it and make use of it in our anesthetics.

I did not feel that if Dr. Stovin was to present ethyl chlorid to us, give us some information with reference to it from his experience not as an anesthetist but as a nose and throat surgeon, he would be expected to endorse ethyl chlorid thoroughly. We do not want to hide from ourselves and delude ourselves into the thought that it is a thoroughly safe anesthetic, and that therefore after this evening's meeting we can endorse it for very general use. It has certain limitations. What we are anxious to find out is the truth regarding its dangers and its safety, and just what we mean when we say it is safe for children and not safe for adults, or is it any more safe with children than with adults? That is what we are interested in as a Society of Anesthesia, to determine and probe into these things that we hear so that we may give to ourselves and to the profession at large whatever information of an encouraging nature we may have as to the use of general anesthesia.

Restoring Pleasing Expression With Artificial Dentures*

By JAMES P. RUYL, D.D.S., New York, N. Y.

FOURTH ARTICLE

A TECHNIC FOR SETTING TEETH AND REARRANGING THEM IN THE MOUTH

It is not necessary to take too much pains to get the central relation of the mandible exact when taking the impression or before the teeth are set up, because in this technic it can be done more satisfactorily after the teeth are in wax than at any previous time. A bite that is approximately correct to start with is near enough.

ARRANGE THE POSTERIOR TEETH FIRST IN CASES WITH MARKED OVERJET**

The mandibular second bicuspid should be set in about the place it is to occupy. It is immediately followed by the two molars on the same side and then by the first bicuspid. All these teeth are set directly above the ridge. This rather unusual plan is followed because I find it easier to locate the position of the second bicuspid than that of the first bicuspid. Set the same teeth in the same way on the other side.

Cut a place in the mandibular bite rim just wide enough to permit setting a cuspid and set it. Cut a place in like manner for the lateral and afterward for the central and set them, keeping the labial surfaces of the teeth

in line with the surface of the bite rim as it was carved to secure the required position of the lip. Set the teeth on the other side in the same way. It is much easier to keep these teeth in just the desired positions if only a small area of bite rim is cut away at one time.

IRREGULAR ARRANGEMENT OF MANDIBULAR INCISORS

If the anterior segment of the patient's mandibular arch is contracted, as it usually is in persons who show marked overjet, it is safe to assume that the natural mandibular incisors were irregular in position, and that a satisfactory appearance of the mandibular denture will require irregular alignment of the artificial teeth. The most pleasing expression always comes from the use of mandibular anteriors a little too wide to fill the spaces between the first bicuspids, if they are arranged with an agreeable irregularity.

Set the maxillary teeth to occlusion with the mandibular teeth starting with the second bicuspid on either side. When the occlusion is satisfactory on one side, set the teeth on the other side in the same way.

Cut a place in the maxillary bite rim for one central and set it with its labial surface in line with the surface of the rim. Follow with the lateral and the

* This is the fourth of a series of six articles by Dr. Ruyl on this subject.

** In cases of only normal overjet, follow the usual plan of arrangement, that is, set the maxillary teeth first.

cuspid on that side and then with the same teeth, in the same order, on the other side.

After the teeth have been set on the baseplate in the manner described, both trial plates should be placed in the mouth and a careful inspection of tooth form, color, position, etc., should be made, less attention being paid to details than to the general effect.

CHECK CENTRAL RELATION

At this time central relation should be carefully checked for the final arrangement of the teeth. To do this, dry the occlusal surfaces of the mandibular bicuspid and molars so that wax will stick to them, cut strips of carding wax* about 3/16 inch wide and long enough to cover the occlusal surfaces from the mesial of the first bicuspid to the distal of the second molar on each side, and fasten each strip in place with a hot spatula. Put both trial plates in the mouth. Stand in front of the patient, apply the tips of the forefingers to the buccal surfaces of the mandibular trial plate opposite the second bicuspid, and place both thumbs beneath the chin to aid in holding the trial plate in place.

Ask the patient to open the mouth and then to close until he feels the first contact of the carding wax against the maxillary teeth and to stop there.

Then have him open and close almost into that contact two or three times. At the last of this effort he will begin to show signs of fatigue, which is just what is desired. Hold the jaw just out of contact for a moment to increase the fatigue, the purpose being to obtain relaxation. When it can be felt that the tension has relaxed, ask the patient to close just into contact as at first. When this contact is established, do not ask him to close further, but with the thumbs, which are placed below the chin partly for this purpose, press the mandible upward until the cusps of the maxillary teeth are in sufficient contact to make a good impression in the wax on the mandibular teeth, but the wax should not be bitten through.

Replace the maxillary trial plate on the cast. Knock the mandibular cast from its model bow. Set the trial plates together by means of the bite which has just been taken, put the incisor guide pin in place and reattach the mandibular cast.

Take away the wax which is between the teeth. Some rearrangement of the teeth to secure articulation is always necessary, since it is desired that the anterior teeth shall not come into contact until the stress of occlusion has pressed the posterior sections of the dentures a little into the tissues. In a few days of use sufficient change in the position of the dentures will take place so that the anteriors of the two dentures will come into light contact, but not into the heavy contact characteristic of the posteriors.

285 Madison Avenue.

*For the benefit of readers in other countries it should be explained that carding wax is the black wax on which artificial teeth are mounted for sale. It differs from baseplate wax in being softer and less brittle, and there are important uses for it in the construction of artificial dentures.

Face to Face With Opportunity*

By GEORGE WOOD CLAPP, D.D.S., New York, N. Y.

Only yesterday did I learn of the magnificent contribution by Senator Couzens of ten million dollars to be spent in twenty-five years to aid in developing a race of physically sound children in the State of Michigan. Most interesting to us and, I believe, essential to the welfare of the children, dental health and oral health have been recognized as important elements in general health, and you are engaged in carrying dental service to those who have sat in darkness, in order that they may see a great light and walk more constructively in the future. Properly equipped, you are visiting rural schools, charting mouths, relieving pain, referring children from financially comfortable families to local practitioners, and, for indigent cases, extracting teeth and placing some fillings.

The way in which the story came to me gave great force to three conceptions concerning this undertaking: (1) its magnitude, (2) its incalculable value to the people of Michigan, if it is wisely directed, and (3) its great opportunity for dentistry and for you.

The story came in this wise. Yesterday Dr. White took Dr. Ruyl and me to the Detroit Country Club for a game of golf. Soon after we left the first tee Dr. White began the story, which I found tremendously interesting. Just after we left the third tee he mentioned, casually, that he had shifted the

speaking program which Dr. Braun had arranged for me some months ago, and that, instead of speaking to the service club for which I had made preparation, I was to speak to you. Up to that time my golf game had been going unusually well, but after that it went very badly. And I fear that this talk will go badly also because it has been impossible in the time available between then and now to make the preparation to which so magnificent an undertaking is entitled, and which you would have a right, under other conditions, to expect. Let me do the best I can with the three considerations that have been mentioned—the magnitude of the undertaking, its value to Michigan, and the opportunity for dentistry and for you.

First, the magnitude. As Dr. White told you in his introduction, I have been actively interested in this form of work for many years. It was my good fortune to be one of the committee supporting Dr. Ebersole in the pioneer work in Cleveland nearly twenty years ago. Failing to get financial support by the dental profession generally, Ebersole secured four thousand dollars and the necessary equipment from dental manufacturers. A group of public-spirited dentists in Cleveland gave their time and effort, and Dr. Ebersole gave himself and finally his life to the work. As a result of all this we carried twenty-seven children through one school year.

When Dr. Fones wanted to begin that demonstration in the schools of

* A noon-day address to the Dental Advisory Committee and Field Dental Staff of the Children's Fund of Michigan, May 5, 1930, Dr. Oliver Wilson White presiding.

Bridgeport which will long remain as an inspiration to our profession, he labored five years to get an appropriation of five thousand dollars. His hygienists worked, voluntarily, for \$9.00 per week in order to stretch that tiny sum to its greatest effectiveness. And then, just when Bridgeport might have reaped its richest harvest, the best parts of the undertaking were killed in the midst of a petty squabble among politicians. Pennsylvania and Mississippi and Atlanta and other centers are coming along as fast as the available funds permit.

A man with a great vision has set you free from all the financial and political shackles that bind other people, and you are going forth, twenty strong, properly trained and equipped missionaries of health. It is not impossible, for reasons which I shall try to outline briefly, that this may be the biggest thing in dentistry for many years.

If it is a big thing in dentistry, it will be so because it is a big thing in child health. If it is a really big thing in health, it will be because you have a broad conception of the duties and opportunities of the professional man. And that brings us to our second item, its value to Michigan.

If you search the dictionaries for a definition of a professional man, you are not likely to find one sufficient for your needs. But if you will study the lives of the men who have given the professions the place they have in the scheme of life, you will be able to make your own definition.

The professional lives of these men were characterized by two kinds of activity: (1) direct service in emergency,

and (2), more cumulative and perhaps more important from some points of view, instruction to people as to how to live more wisely physically and legally and spiritually. They taught people that in all these phases of life there are many things no one else can do for them, but which their own welfare requires that they do for themselves. And the more people have done these things, the better off they are.

You may, if you will, follow the footsteps of your professional forefathers. The direct service you will render in the relief of pain, the filling of some teeth and the removal of others will be of great benefit. But if you learn to recognize that every dental ill is a sign of a systemic ill that should have attention and also how to practice and teach the fundamentals of that attention, your professional value will be incalculable. On the other hand, if you confine your efforts to extracting and filling, etc., you may make an impressive showing in your annual reports for as many years as the money lasts. And you will do much good. But because you will have not dealt with fundamentals, the benefits will begin to fade as soon as the money is gone and in a few years they will largely disappear. If, on the contrary, you deal with fundamentals, you may record fewer fillings and extractions, but your work will enter into the very fiber of scientific health service and will be cumulative.

I have never had the pleasure of talking with Senator Couzens and have no knowledge of the details of the vision that inspired this great gift, but I am sure it would warm the cockles of his heart if he knew it was making children fundamentally healthier now

than they would otherwise be and teaching them so that when their turn comes to be parents they will raise still better children, until partly through his effort, Michigan is annually producing a great crop of physically and mentally sound boys and girls.

The underlying causes of the ills you find in the mouth—jaw deformity, irregular teeth, diseased gums, decayed or aching or putrescent teeth—are not to be found in the mouth. They are to be found in the homes, in the food, and in conditions of work and rest and play. The correction of these causes and the prevention of further damage by them are not to be effected in the mouth—not though you filled or extracted every decayed tooth in the State of Michigan. The cure is to be effected where the cause is found—in the habits of living. If you grasp this fact and have the vision, the courage and the patience, knowing that it will take all of your professional lifetime and that of one or two others after you to put it across, you will have lived up to the call of a profession as few in our line of work have done, and that call is to share with God the privilege of helping people to learn to help themselves. It is the hardest, most trying and apparently the most hopeless of tasks, but that may be because it is the finest and most worth-while of all tasks.

You will have to work through others, especially the school teachers, if you are to do your best. They should be for you, because your direct service will reduce the number of absentees from school and help all the children to better physical condition. Tactfully you will be able to give them something of your greater vision. Get for each

of them a copy of the book, *The Rise and Fall of Oral Hygiene in Bridgeport*. They will appreciate the very clever way in which Fones's aids so greatly interested the children in health fundamentals that they would work diligently all day to make possible the Food Fun Game or the *Story of Tiny Tim*.

Your contacts through the children are especially favorable. If you tried working directly with parents, you might not accomplish much. Many of them are poor or indifferent or stupid. But if you can get the children to want certain things to eat or other things avoided or habits of life corrected, you are likely to get those things done. Your value to every life in which you touch the fundamentals will be great; your total value to Michigan will be beyond computation.

I said in the beginning that you have a great personal opportunity. And now I shall try to show you in what that consists.

Most of you are young men, probably not very long out of dental college. If your college years are the first formative period of your professional life, your early working years are the second formative period. What you do in them is likely to influence very strongly what you will do with all the years that follow.

You are working now for salaries which are little more than enough for a living. If you are married, your work probably takes you away from home. You know dentists who have rich patients and receive big fees and live at home. You think they are much better off than you. Not necessarily.

There is of course no such person

as the average dentist, but if out of contact with thousands of them one might construct the picture of such a person, his idea of success in life would be an endless line of people waiting for him to repair or remove and replace teeth, with remunerative fees in hand. Then he could have a fine home and a big car and three afternoons a week for golf.

Do you recognize that such a conception is concentrated on the ART of dentistry, on the thing you do with your fingers, the direct service intended for emergencies but overlooking some of the most important fundamentals of health service? Do you recognize that this attitude explains why dentistry is just getting ready to *begin* to be a real profession? And do you perceive not only that the art of dentistry is blind to its finest opportunities, but that it can never command respect as a profession from physicians or surgeons or the public?

In what does your opportunity consist? In that you may if you will, in these formative years when you do not have to pay office expense and hunt for patients, get a grip on the fundamentals

of health and of dentistry as their servant. If you get that grip firmly enough, it will last you throughout life. The men in our profession whom I delight most to honor have this vision, they have good professional knowledge and technical skill, and they have made themselves of pleasing appearance and manner and good salesmen. Their offices are crowded and their earnings are satisfactory.

If you will give yourself during these formative years these characteristics, you cannot talk yourself out of work. The preachers and lawyers and doctors have not succeeded in doing that in several hundred years. There never were so many of them, and they were never so well paid as they are now.

Success to you! May vision and devotion inspire your efforts. May intelligence and knowledge and patience make them effective. And may you be among those who, working on the foundations we older artisans have built, will bring dentistry nearer to the commanding place it should occupy among those efforts which strive for physical and mental health for all people.



A Consideration of the Advisability of, and the Measures Favored for, the Protection of the Oropharynx During Dental Operative Procedures

By M. HILLEL FELDMAN, D.D.S., New York, N. Y.

Chief of Dental Department, Lincoln Hospital; Instructor, General Anesthesia, Allied Dental Council, New York; Author of Textbook, *A Manual of Exodontia*

The danger of some foreign body lodging in the throat or even suddenly making a quick entry into the bronchi is ever present in dental operations. This unhappy event may and does concern the general practitioner equally with the specialist in surgical procedures. With the patient's head resting backward against the headrest, and with the oropharynx unguarded, many possibilities arise in the nature of unpleasant complications. I shall consider the subject matter under two headings: (1) the operative procedures which are purely restorative and creative; (2) the surgical maneuvers incident to the extraction of teeth or the performance of any operation attended by hemorrhage, whether it be done under a local or a general anesthetic.

The possibility of foreign bodies lodging in the oropharynx is equally present when one is operating upon an incisor tooth or upon a third molar. Furthermore, the position of the head tipped forward or backward likewise may be irrelevant as regards this ever present menace.

PROTECTION DURING FILLING OPERATIONS

For the protection during filling procedures I advise the more generous use of a small dental napkin made from a strip of gauze about three or four

inches square. One end of the napkin should be tucked around the tooth at the muco-buccal fold, and the other end permitted to spread fully across the tongue and oropharynx like a curtain. This napkin will catch all filling materials that may be dropped as they are carried to the tooth for condensation. When the rubber dam is applied for such a filling operation, this curtain of gauze is of course unnecessary, but I realize that the great majority of filling operations are done without the adjustment of the rubber dam, hence the need for directing attention to the advisability of guarding the throat from a suddenly straying particle of filling material or filling instrument.

The further back in the mouth one is called upon to make a restoration, the greater the need for throat protection. Frequently the dental mirror will serve as an effective means for catching falling particles of filling material which drop from a tooth in the posterior region of the mouth. If one is skillful in this technic, the napkin may be dispensed with, but I still feel that the patient will greatly appreciate the act of the operator in not making the tongue and the floor of the mouth a receptacle for debris.

PROTECTION DURING EXODONTIC OPERATIONS

Curting off the throat during exo-

dontic operations or during surgical maneuvers of a more involved nature is a step of the very utmost importance in our work. Personally I do not favor what is commonly called *throat-packing*. The latter is a much abused term. To "pack" a throat effectively is not only to block off the passage of foreign bodies toward the base of the tongue, but also to check respiratory freedom during the induction of a general anesthetic.

I constantly use and teach the application of a *throat curtain*. This should be placed just posterior to the area of operation. If we are operating in the incisor area, there is no need for carrying our gauze sponge or curtain back to the oropharyngeal region. H. J. Field, of Newark, N. J., has a very excellent suggestion for a curtain for operations upon the ten maxillary incisors and premolars. He picks up the patient's linen napkin and tucks the end around the tooth being removed in such a manner as to guard the throat effectively and protect the tongue and lips from injury.

It is not an infrequent occurrence for a tooth in the maxilla to snap suddenly out of the beaks of the forceps with the ease of a wet cherry pit or melon seed from between the thumb and the index finger. Unless the throat is properly guarded, the tooth may shoot backward to where its recovery may be impossible, or it may give the patient and the operator some very unhappy moments before it is retrieved. Similarly, when the beaks of the forceps engage themselves around the crown of a tooth carrying a filling, the closing of the beaks may loosen the filling so that the forceps carry away the tooth but not the filling. The latter may easily

lodge in the oropharyngeal region if there is no curtaining placed by the operator. Again, in the effort to remove a carious tooth a portion of the enamel wall may easily fly backward behind the base of the tongue. The same thing happens during the removal of a porcelain crown restoration. Not infrequently the porcelain fractures and part of it shoots off to the unguarded oropharynx.

THE THROAT CURTAIN

From the foregoing it would appear to be equally good practice to use a throat occluder or curtain whether operating under local or general anesthesia. Of course in operations under general anesthesia we are additionally concerned with the problem of preventing ingress of air or too great an escape of gases, thereby disturbing the anesthetic balance. For local anesthesia operations one need use only a thin dental napkin already referred to above. For general anesthesia operations the throat curtain must be thicker. The exodontia throat packs serve the purpose well enough, without the attached string. Since the gauze sponge is not to be placed behind the tongue, what need is there for the string? Personally I use a sponge made up by our office assistants. It has a center of an absorbent-cotton square wrapped in gauze. The whole when completed comes to a size of about a three-inch square. In thickness it is about a half inch. The cotton is cut into squares just as it unrolls from the large package.

A FINAL PRECAUTION

There is one final precaution that I wish to stress in closing. The operator

should not proceed with his operation until tooth or filling or tooth particle has been ejected from the mouth. It is unwise to permit the dislodged tooth or root to rest on the floor of the mouth while directing the instrument to another tooth or teeth. These foreign bodies are a menace until they have actually been removed from the mouth. Sometimes they have been known to escape attention and slip backward during general anesthesia. The matter of the retention of the throat curtain

is not a difficult problem. Sometimes the assisting hand holds it in position; at other times I find it more suitable for my assistant to keep the gauze curtain sponge in position.

I feel that if more use is made of the gauze throat curtain for operations of a restorative or a surgical character, there will be fewer unhappy moments to disturb the harmony of the dental atmosphere.

730 Fifth Avenue



[THE PERIODONTIST]

As regards the early discovery of incipient caries, there seems to be some difference of opinion as to just where the responsibility should lie. The periodontist should assume the obligation of making a searching examination for caries or other defects at each periodical visit of the patient, and the general practitioner should make a set of bite-wing films, at least twice a year, for youthful patients, and at least once a year for adults. Roentgen-ray studies of this type are of great assistance in locating obscure caries on the proximal surfaces, and not infrequently cavities are disclosed which escaped attention during a careful search with the finest explorers in the hand of a competent operator. When this plan is systematically carried out, the tragedy of pulp involvement through deep-seated caries rarely occurs and, as a matter of fact, should never occur.

—TRACY.

The Psychology of Fear

By A. PORTER S. SWEET, D.D.S., Hornell, N. Y.

This extremely common emotion of fear has been recognized since very early times. The ancients acknowledged its existence, and some of their thoughts on fear have come down to us. Epictetus¹ says of this emotion, "Not death nor pain is to be feared, but the fear of pain or death." Marcus Aurelius² in his *Meditations* tells us: "And he also who is grieved or angry or afraid is dissatisfied because something has been, or is, or shall be of the things which are appointed by him who rules all things. . . . He then who fears or is grieved or angry is a runaway." In the Bible³ we find a very good description of vague fear: "In thoughts from the visions of the night, when sleep falleth on men, fear came upon me, and trembling, which made all my bones to shake. Then a spirit passed before my face; the hair of my flesh stood up."

More modern philosophers also have given us thoughts on fear. According to Burke⁴: "No passion so effectually robs the mind of all its powers of acting and reasoning as fear. For, fear being an apprehension of pain or death, it operates in a manner that resembles actual pain." Again he mentions it as follows: "I say a man in great pain has his teeth set, his eyebrows are violently contracted, his forehead is wrinkled, his eyes are dragged inward and rolled with great vehemence, his hair stands on end, the voice is forced out in short shrieks and groans, and the whole fabric totters. Fear, which is the apprehension of pain or death, exhibits exactly the

same effect, approaching in violence to those just mentioned, to the nearness of the cause, and the weakness of the subject." John Locke⁵, that noted English educator and philosopher, describes the emotion as follows: "The only thing we are naturally afraid of is pain, or loss of pleasure, and because these are not annexed to any shape, color or size of visible objects, we are frightened with none of them, till either we have felt pain from them, or have notions put into us that they will do us harm." Our own Emerson⁶ thought that "fear is a thing which a scholar by his very function puts behind him. Fear always springs from ignorance." Marden⁷, a still more modern "success" writer, says of fear: "Fear is but a product of our own thought. . . . Fear is born of ignorance. . . . Fear acts as a rank poison to the bodily functions, halting some temporarily, and totally paralyzing others."

Authors very often write of fear and use the emotion in their books and plays. Cervantes⁸ has his character Sancho say: "That is true, but fear hath eyes which can see things under the ground, and much more in the skies." Shakespeare⁹ has Brutus say to the ghost of Caesar: "That mak'st my blood run cold, and my hair to stare." Again in Macbeth we find: "Go prick thy face and over-red thy fear, thou lilly-liver'd boy."

Why, then, fear being so common, has not a thorough study been made of it? There is every reason to believe that such a study might do a great deal to

alleviate this dread emotion, even though perhaps it could not eliminate it entirely. Our own interest in and study of fear owe their origin to our desire to help those people who do not receive dental attention because of an intense dread or actual fear of dental treatment. As often happens, we were led much further in this work than we had intended to go originally. In order to form a good understanding of dental fear, it was necessary to study first the symptoms and reactions of general fear.

There are almost as many classifications of fear as there are psychologists. Those of Ribot¹⁰ and Freud¹¹ seem to be the most useful. The classification of Ribot recognizes three forms of fear:

- (1) The cause is in some event of a man's previous life of *which he retains the recollection.*
- (2) Some morbid fears have their origin in occurrences of childhood of *which no recollection has been retained.*
- (3) The morbid fear may be the result of the *occasional* passage of a vague and indeterminate state into a precise form.

Freud, on the other hand, classifies fear merely as *real* and *neurotic*. While the classification of Ribot undoubtedly has its advantages, we prefer the more simple one of Freud. It is more natural, and its simplicity makes it much easier to diagnose and analyze the fears of a patient.

The symptoms of fear are manifold, their variety and number depending upon the intensity of the emotion and the weakness of the individual. In a neurotic fear of very slight intensity, or, in other words, a nameless anxiety, the

symptoms are very slight and hardly discernible. At the other extreme, in terror, such symptoms are numerous and very pronounced. The symptoms are most easily classified as to external and internal. Some almost defy classification and seem to fall into both groups. Below is an outline of the symptoms of fear, in what seems to be the most natural and workable form. The numerals following each symptom indicate the authorities that have observed and recorded these symptoms, as given in the bibliography at the end of this article.

CLASSIFICATION OF THE SYMPTOMS OF FEAR

A. External symptoms.

I. Hastens the heart-beat. ^{13, 14, 15, 16, 17, 21, 24}

II. Increases respiration. ^{12, 13, 14, 15, 16, 20, 21, 24}

a. Vocal manifestations. ^{12, 15, 16, 22}

1. Choking, gasping sounds. ¹⁶

2. Husky voice. ^{10, 16, 17, 18}

3. Cry of terror. ¹⁶

b. Mouth opens. ¹⁶

c. Lips tremble. ^{16, 17}

d. Wings of nostrils dilate. ¹⁶

III. Constricts the external muscles. ^{10, 12, 13, 14, 15, 16, 17, 18, 21, 22, 24}

a. Hairs stand on end. ^{10, 12, 13, 16, 17, 24}

b. Lips tremble. ^{16, 17}

c. Wings of nostrils dilate. ¹⁶

d. Eyes open wide. ^{15, 16, 18}

e. Mouth opens. ¹⁶

f. Yawn. ¹⁶

- g. Eyebrows are raised. ¹⁶
- h. Palpitations and tremblings. ^{10, 12, 14, 16, 17, 21, 22, 24}
- i. Increased alertness. ^{16, 18, 20}
- j. Tongue prickles. ¹⁷
- k. Pupils dilate. ^{12, 13, 16}
- IV. Causes a cold sweat. ^{13, 16, 17, 21, 24}
- V. Hair may turn gray. ¹⁷
- VI. Hair may fall out. ¹⁷
- VII. Paralysis. ^{10, 16, 17, 22, 24}
- VIII. Utter prostration. ^{16, 20, 21, 22}
- IX. Death. ^{10, 17, 20, 24}
- B. Internal symptoms.
 - I. Increases blood supply to the heart, lungs, brain and skeletal muscles. ^{12, 24}
 - II. Constricts the blood-vessels. ^{12, 13, 24}
 - a. Paleness. ^{10, 12, 21, 22, 24}
 - b. Shortens clotting time. ¹²
 - c. Increases blood-pressure. ^{12, 13, 24}
 - III. Inhibits digestive process. ^{13, 21}
 - a. Stops peristalsis. ¹²
 - b. Decreases blood supply to the viscera. ¹³
 - c. Stops secretion of digestive juices. ^{12, 13, 16, 17, 23, 24}
 - IV. Stimulates the liver to release sugar. ^{12, 13}
 - a. Abolishes muscular fatigue. ^{12, 15}
 - b. Increases muscular efficiency. ^{12, 13, 15, 16}
 - V. Lowers tone of visceral muscles. ^{10, 12, 16, 17, 21}

- a. Excretions involuntarily voided. ^{10, 16, 17}
- b. Vomiting. ^{12, 21}
- VI. Stops secretions. ^{10, 12, 13, 16, 17, 23, 24}
 - a. Saliva. ^{10, 12, 13, 16, 17, 23, 24}
 - b. Digestive juices. ^{12, 13, 16, 17, 23, 24}
 - c. Lacteal. ^{10, 17}
 - d. Existing menstruation. ^{10, 17}

Of course as one must readily see there is much overlapping and repetition in the classification above. However, this is necessary, for the symptoms themselves overlap a great deal; in fact, the intensity of the fear is often shown by the fitting together and overlapping of a variety of symptoms.

Of all the students of fear Darwin¹⁶ has been the closest observer. His descriptions and remarks show that here indeed the trained, scientific observer was at work. Up to the present Cannon¹² is the most scientific observer, and his work is amazing in its detail and accuracy and in the soundness of the conclusions. The actual reaction of the individual to fear is probably expressed best by the psychologist Woodworth¹³, as follows: "If the organism receives a stimulus that arouses fear or anger, again the adrenal secretion is increased. All the organs soon get a strong dose of adrenalin, and some of them are much affected by it. It hastens and strengthens the heart-beat, it causes the big veins to squeeze the blood rapidly into the heart and thus quickens the circulation. It stimulates the liver to release stored sugar into the blood, and the muscles are thus abundantly supplied with fuel, as well as with oxygen

from the increased circulation (and respiration), and are able to work with great energy and with a minimum of fatigue." "While the adrenal hormone is thus stimulating the external muscles, it is having the opposite effect on the digestive organs. These inhibitory effects are started by the sympathetic nerves to the stomach, but are continued by the action of the adrenalin circulating through the stomach walls. The adrenal glands, in fact, are an adjunct to the sympathetic nerves. The gland itself is aroused by one of the sympathetic nerves, and its hormone affects the same organs, and in the same ways, as the sympathetic nerves. Both erect the hairs, dilate the pupil, both produce sweating, both constrict the large veins and small arteries and thus raise the blood-pressure."

Besides all the various symptoms that indicate fear, there are several characteristic reactions that appear in varying degrees and numbers according to the intensity of the fear. Their appearance is so common that they might almost be classed as symptoms of fear, while, as a matter of fact, they are the natural reactions of the individual to the existing fear. By these reactions we mean cowering, clinging, shrinking, dodging, huddling, getting under cover and running away. They are all perfectly natural and instinctive, so much so, in fact, that an individual will shrink and dodge even when he knows that there is no real reason to shrink and dodge. A study of these reactions will often give valuable data as to the intensity of the fear and a probable successful method of treatment.

At present there is much need of a deeper study of fear. The symptoms

and reactions are well known and commonly observed, but there is a scarcity of definite knowledge as to the proper methods and procedures to be used to treat this unhealthy mental condition—unhealthy from the fact that anxiety, if uncontrolled, leads to active fear, which in turn, if not checked, turns to terror. It is also a well-known fact that uncontrolled fear and terror may lead even to insanity. All this being so, a careful, sympathetic study of those patients who exhibit anxiety, dread and fear, will certainly lead to a better understanding of methods of treatment. This in turn will lead to more and better dentistry for these unfortunate individuals and a more satisfactory practice for the dentist. Certainly the ideal relationship between the dentist and his patient is one of mutual understanding with the complete absence of fear.

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Hart J. Goslee, B.S., D.D.S., F.A.C.D

On May 31, 1930, Hart J. Goslee died in Chicago at the age of fifty-nine. Two years ago he received an injury to his foot which necessitated the amputation of his leg, but in spite of this misfortune he carried on to the end.

He was born in St. Joseph, Mo., and received his early education in Kansas City. He graduated from the Chicago College of Dental Surgery in 1895 and became instructor in prosthetics, a subject in which he was to attain world-wide prominence. The first edition of his textbook on crown- and bridge-work appeared in 1903, and the fifth in 1925.

He received the degree of Bachelor

of Science from Marquette University and was an honorary member of the New York Odontological Society and the First District Dental Society of New York. In 1901-1902 he was President of the American Institute of Dental Teachers. He was an Ex-President of the Chicago Dental Society, the Odontographic Society of Chicago and the Illinois State Dental Society. He was a member of the Chicago Athletic Club.

A well-known and valued member of the dental profession, Dr. Goslee's passing will be mourned by all who knew him and were benefited by his teaching.



A Report on 202 Cases of Vincent's Infection

By F. W. WITTE, D.D.S., Morenci, Arizona

On January 1, 1930, three pupils were sent to my office by the school nurse to be examined and treated for a "sore mouth." These and several more sent on successive days proved to be cases of Vincent's infection. When this condition was reported to the members of the local Board of Health, they advised that all school children be examined. Smears were taken from 315 suspicious mouths, and microscopic examination was made. In all, 202 were found to be positive for Vincent's infection. A positive diagnosis was made only when both organisms were found. Treatment was made compulsory by the Board of Health.

Morenci, Arizona, is a copper mining camp having a population of about 7,000, of whom approximately 60% are Mexicans. The rest of the inhabitants are chiefly native Americans, although there are some Cornishmen and a sprinkling of Italians.

Among the foreign elements, especially the Mexicans, living conditions are bad. Due to the mountainous nature of the locality the houses are small and crowded and many of them poorly constructed. A family of from eight to fourteen living in a three-room house is not uncommon. Housing conditions have become increasingly worse for the past few months, due to the fact that recent construction and development work in the mines has brought in several hundred additional families.

The predilection of the Mexican people for highly spiced foods is well

known. Their diet consists chiefly of beans, meat and tortillas. Milk and fresh vegetables are often almost entirely absent from the diet.

All of the foregoing factors are, I believe, of great importance in accounting for the epidemic under consideration, and especially for the great number of cases among the Mexicans as compared to the Americans.

There are 305 pupils enrolled in high school, of whom 123 or approximately 40% are Mexicans. In the grade schools there are 1025 pupils, of whom 820 or about 80% are Mexicans.

There were 60 cases of Vincent's in high school, which was 19.6% of the enrolment. In the grades there were 142 cases or 13.8% of the enrolment. Of the 60 cases in the high school 45 were Mexicans and 15 were Americans. In other words, 8.2% of the American pupils and 36.6% of the Mexican pupils in the high school were infected. In the lower grades 135 cases were Mexicans and seven cases Americans, and, while 13.8% of the entire enrolment was infected, only 3.4% of the American children were.

I believe that the relatively high proportion of cases found among the older children can be accounted for by the fact that practices which are conducive to spreading the disease, such as kissing, smoking, and particularly trading cigarette butts, are much more prevalent in high school than among younger children.

The relatively higher percentage of

cases among the Mexicans as compared to the white children (approximately $4\frac{1}{2}$ to 1 in high school and 5 to 1 in the grades) can be explained by the more unsanitary living conditions common to the Mexicans and their almost universal greater neglect of the oral cavity. Incidentally it is interesting to note that, of the 202 cases, only 15 had ever had previous dental attention, of whom 11 were high-school pupils.

If Vincent's infection were confined to the mouth alone, there would be sufficient reason for according it more attention than we do, as the damage done in the mouths of infected individuals demands conscientious effort on our part to overcome it. But the damage is not confined to the mouth. Any mucous membrane may become affected. The infection can proceed from the mouth to the nostrils, middle ear or meninges. Investigators have reported cases of lung gangrene, putrid pneumonia, chronic middle-ear infection and cerebro-spinal meningitis in which the organisms recovered were the bacillus fusiformis and the spirochete of Vincent. Among these investigators are Weaver, Tunnicliffe, Pearlman and Kline.

ETIOLOGY

Vincent's infection is associated with the presence of the bacillus fusiformis and the spirochete of Vincent. Tunnicliffe cultivated the organisms anaerobically upon slants of ascitic agar at 37.5° C. This observer found that, in such cultures, before the fifth day only bacilli could be found; that after this day, however, spirilla gradually appeared and finally constituted the majority of the organisms in the culture.

It appeared to Tunnicliffe from this that the spirilla represented the adult form. The organisms can occasionally be found in apparently healthy mouths, where they seem to remain dormant until certain factors, such as neglect of mouth hygiene, lowered resistance, etc., present an opportunity for them to become pathogenic. Common drinking cups and eating utensils, poor food and poor living conditions are certainly predisposing causes.

In the 200-odd cases in the schools at Morenci, Arizona, we found that in several cases among high-school pupils the disease had been transmitted by trading cigarette butts. The comparatively high number of cases in the lower grades was blamed on the practice, now discontinued, of taking up pencils from each pupil every night placing them in a common container and re-issuing them each morning.

SYMPTOMS AND DIAGNOSIS

Red, swollen gums, formation of ulcers covered with a grayish-white membrane, profuse bleeding and fetid breath are characteristic symptoms of Vincent's infection. The tongue is often coated and a temperature of up to 102° or 103° during the acute stages is not uncommon. In the series of cases under consideration lesions were present on the tongues of four of the individuals. The lesions were much more commonly found on the buccal and labial gums than on the lingual. Of great diagnostic value is the presence of the two organisms in stained smears, which renders the diagnosis positive.

PROGNOSIS

The prognosis is usually favorable,

but the mouth that has once been attacked is never quite up to normal, as complete regeneration of the tissues does not occur. In a series of 202 cases the average number of treatments was four.

TREATMENT

Numerous drugs are used and recommended in the treatment of Vincent's infection. They may be divided into three classes:

(1) The escharotics and general bacteriocides, such as silver nitrate, copper sulphate, trichloroacetic acid, potassium permanganate, iodine, mercurochrome, argyrol, etc.

(2) Those which liberate nascent oxygen, as hydrogen peroxid or sodium perborate and chromic acid.

(3) Specific spirocheticides, including salvarsan, neosphenamin, sulphur-sphenamin, Fowler's solution and bismuth sodium tartrate.

In my practice the drugs used are limited to the second and third groups, namely, the oxidizing agents and the spirocheticides. Nearly all of the incipient cases can be cured by the frequent application of hydrogen peroxid. In the more severe cases sterner methods are necessary, and chromic acid plus peroxid or sodium perborate is used. In individuals where the lesions were confined to the gums Hardgrove's method of treatment or a modification of it proved the most effective in my hands.* In some of the cases where lesions were confined to the gums, and in all cases where lesions were formed on the tongue, palate, lips or throat, neosphenamin or bismuth sodium tartrate was used.

* This method is summarized later.

A resumé of the methods used in the treatment of the 202 cases among pupils in the schools at Morenci follows:

Obviously, considering the number of pupils who were in need of treatment, it seemed advisable to adhere as closely as possible to standardized methods of treatment and still get the desired results as expeditiously as possible. A routine treatment was employed in all cases.

(1) The mouth is thoroughly sprayed with the following solution:

Wine of ipecac.....	6 dr.
Tincture of aconite....	8 dr.
Fowler's solution.....	10 dr.
Glycerin	10 dr.
Hydrogen peroxid.....	16 fluid oz.

(2) A thick paste of sodium perborate is prepared, smeared on the gums and held in the mouth for from five to seven minutes.

(3) The patient is asked to expectorate, but the mouth is not rinsed.

(4) The gums, with the excess sodium perborate still adhering to them, are painted with chromic acid 7%. The blackish residue remaining after the reaction between the chromic acid and sodium perborate subsides is not disturbed. The patient is instructed to expectorate at will, but not to rinse the mouth for at least thirty minutes.

A mouthwash, the same as is used at the chair except that it is diluted with an equal amount of distilled water, to be used every hour, is prescribed for home use.

Prophylactic treatment is started as soon as acute symptoms subside. When a great deal of calculus is present, as much scaling as is possible is done at each appointment. If there is no definite improvement after the second or

third treatment, one of the following methods of treatment is employed:

(1) 2 c.c. of a 1.5% aqueous solution of bismuth sodium tartrate (Searle) is injected intramuscularly every three days. Bismuth sodium tartrate glycerinated is applied topically daily.

(2) A 10% solution of neoarsphenamin in glycerin is applied topically.

(3) Hardgrove's method—chromium trioxid is packed into the pockets, and 1 oz. of hydrogen peroxid is held in the mouth for one minute.

(4) A modification of Hardgrove's method, using chromic acid 15%, instead of chromium trioxid.

RESULTS

The number of treatments necessary to bring about a cure was as follows:

AMONG HIGH-SCHOOL PUPILS

20 required 3 treatments

14 " 4 "

11 " 5 "

4 " 6 "

5 " 8 "

3 " 9 "

2 " 10 "

1 " 12 "

AMONG GRADE-SCHOOL PUPILS

56 required 3 treatments

37 " 4 "

22 " 5 "

13 " 6 "

3 " 8 "

1 " 9 "

The average number of treatments for high-school pupils was 4.8, for grade-school pupils 3.75.

In 82 of the cases routine treatment, i.e., sodium perborate plus 7% chromic acid, effected a cure.

In 20 cases bismuth sodium tartrate glycerinated was used topically.

In 20 cases an aqueous solution (1.5%) of bismuth sodium tartrate (Searle) was injected intramuscularly, and the same drug glycerinated was applied topically.

In 23 cases a 10% solution of neoarsphenamin in glycerin was applied topically.

In 20 cases Hardgrove's treatment (chromium trioxid and hydrogen peroxid) was used.

In 48 cases 15% chromic acid and hydrogen peroxid was used.

CONCLUSION

In the great majority of cases, especially those confined to the gums proper, a method of treatment in which nascent oxygen is given off seems to be very effective. When the disease is caught in the incipient or mildly acute stage, sodium perborate and 7% chromic acid will usually bring about in from three to five days healthy-looking gums and a negative microscopic slide.

In acute cases Hardgrove's method and a modification of it in which chromic acid 15%, instead of chromium trioxid, is used were equally effective.

When there were lesions on the tongue, palate, lips or throat, where severe symptoms were present, and also in old chronic cases, bismuth sodium tartrate intramuscularly and topically seemed to be especially effective.

Neoarsphenamin and bismuth, topically only, were about on a par.

Some of the cases being treated by one of the oxidation methods, which were not progressing favorably, responded rapidly when neoarsphenamin or bismuth was used instead.

Are not these organisms, which we think of as obligatory anaerobes, capable of becoming facultative aerobes after having been subjected to large doses of nascent oxygen over a period of time?

In closing, I wish to emphasize the following important facts in the treatment of Vincent's infection:

(1) Early diagnosis followed by vigorous and thorough treatment.

(2) Importance of cooperation and home treatment by the patient. This should include the use of the mouth-

wash which has been supplied and such changes in diet as will bring good nutrition and elimination.

(3) Routine use of the microscope in diagnosis and before dismissing the patient as cured.

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The American Society of Orthodontists

RESOLUTION

Realizing the increasing interest that is being taken by school officials, health departments and other organizations everywhere, in the improvement of dental health among children, and,

Believing that malocclusion is one of the most serious and important of remediable dental defects, and,

Whereas, The disregard of this deformity in the inspection of children's mouths results in misleading reports being sent to parents and otherwise published; therefore be it

Resolved, That the American Society

of Orthodontists recommends that all examinations or inspections of the mouths of children for dental defects properly should include, in addition to items already provided for, a notation of malocclusion where present or impending and advise its correction; and be it further

Resolved, That these resolutions be given as wide publicity as possible by publication in the several dental journals and the bulletins of state and other dental societies and organizations engaged in child welfare work.



Impacted Teeth

By ROBERT EUGENE PAYNE, M.D., D.D.S., Los Angeles, Cal.

Mandibular third molar impactions are the bane of the general practitioner of dentistry. Usually the fee is inadequate for the time spent in their removal and in the care that must be taken after the impacted tooth is extracted. Pain after operating, soreness and swelling are usually laid to the operator, and abuse is about all he hears following this minor surgical effort. No wonder that many sidestep extracting as a damage to their practice and dread their removal when it becomes imperative to rid the mouth of impactions.

It is the small operations that occur so frequently in practice that need detailed attention for the best results, and for the aid of the general practitioner I offer my experience, hoping that it may add to his experience with benefit. My sole aim is to give details that will result in less trauma and after-discomfort to the patient.

Impacted teeth, or any tooth infected and inflamed, should not be extracted in the acute stage and particularly when it is in a pus bed or swelling that is about to break down into a well defined and fluctuating pus zone. Open the abscess, relieve the pain by hot packs (towels rung out of very hot water), give aspirin and apply locally aspirin powdered with iodoform by means of a gauze compress dipped in peroxid.

When the violent symptoms have subsided and the tissues have had time to form a protection about the abscessed area and the soreness has

disappeared, the tooth can be safely removed without any danger to the patient as compared with attempting to extract it during the swollen stage or acute conditions noted above. You are all familiar with this, true enough, but it cannot be written about too often and it may save a life. I have never to my knowledge lost a case after an operation, but just within the last three months I have heard of two deaths following the extraction with conditions as above outlined.



Fig. 1
Before extraction.

CASE HISTORY

The following is a minute detail of the procedure for the extraction of an impacted mandibular right molar which has just been completed and is now under daily observation:

A. T., a young man, 25 years of age, presented with an acutely inflamed right mandibular molar (Fig. 1). There was swelling, with pus exuding around the tooth, loss of sleep, and headache. Trench mouth was present around all the mandibular teeth and around the maxillary molars and bicuspid.

Treatment. I applied powdered silver nitrate (in the form sold at dental depots) under the flap of the gum that enveloped the third molar, using a thin blade with a smooth edge to carry it into all the pockets and recesses con-



Fig. 2
The divided crown.

taining pus. Hot packs (wet towels very hot, tested on the back of the hand) were used. This entirely relieves the pain, and the inflammation quickly subsides. This application may be necessary on the third and fifth days, and following this applications of iodoform and peroxid on gauze as a compress within the mouth over the tooth may be used every few days until the soreness has entirely subsided. The peroxid penetrates and carries the iodoform deeper than when used alone and will give relief every time it is applied. The trench mouth was treated, until entirely cured, by a pack that I used every other day, leaving it in constantly until all bleeding subsided. At the end of three or four weeks all soreness had left the molar, and conditions were favorable for the removal of the third molar impaction.

Cutting from the buccal side of the third molar just distal to the second molar, I raised a gum flap, exposing the buccal and distal aspects of the process, and with the aid of two artery forceps

my assistant held the flap away to give free access to the chisel distally. Since the region had been blocked, there was no hemorrhage and no pain. The chisel has its limit, and when this was reached, I cut deeper buccally and distally to the molar with a long-shank rose bone bur. At this stage it became necessary to cut through the impacted tooth with a carborundum disk. It took forty minutes to get through this dense tooth structure, due to the very limited space in which to work and the necessity of avoiding injury to the adjacent parts (Fig. 2).

After cutting through and dislodging the impinging crown I drew the tooth forward gently and without pain against the second molar. At this stage it could not be removed without violence and danger of fracturing the jaw. By cutting away a little more of the buccal process I succeeded in removing it sidewise without injury (Fig. 3).



Fig. 3
Just after removal.

The patient is in excellent condition, with no pain but just soreness. He sleeps well and continues his vocation without loss of time. I believe that this is due largely to the absence of violence in any manner and to taking time, together with gentleness, during the whole surgical procedure.

610 South Broadway

Do You Think?

A RADIO TALK

By DAVID B. FREUNDLICH, D.D.S., New York, N. Y.

Public Health Speaker of the New York Tuberculosis and Health Association, and Lecturer for the Oral Hygiene Committee of Greater New York

Do you think?

In putting this question I hope my radio listeners will bear with me if I place the emphasis on *you* and not on *think*. I *mean* to be personal in asking this question, but I do not mean to be impertinent.

Do you think?

It is a challenge that faces all of us. I can escape the responsibility of thinking no better than you, but what I should like to emphasize today is that it is the amount of *you* in *your* thinking that determines so vital a thing as your general health. Also, it is to be noted that the right *kind* of thinking reflects, in our bodies and on our faces, our physical well-being and our mental poise.

If we are to compete successfully with the high-gear civilization of today, we must *think* our way through life. We must learn more and more to think things through. And it is because proper care of the mouth and teeth requires such intelligent thought that I place before you this query.

Now let us think through together some of the ways and means of acquiring and practicing intelligent mouth care.

Twenty-five years of experience in this field have opened my eyes to the prevalence of much loose thinking and looser talking on the subject of teeth. For instance, do you think that good

teeth are an accident? And, therefore, that the expectant mother need not take the necessary precautions of modern science to aid her infant in securing a sound set of teeth? I have seen so many examples of poor teeth in young children associated with the lack of this prenatal care that I am disposed to discount the accident theory and agree with the scientific investigator who stresses the importance of intelligent care of mother's health for the sake of the coming baby. Do we want our babies born with the correct foundation for strong bones and good teeth? Then we must start with the expectant mother. She should have a liberal supply of milk; she should eat fruits, cereals and green vegetables, for these are the foods that contain the elements of nutrition and growth and make for the baby's firm bones and sound teeth. Also, the expectant mother should have plenty of fresh air, rest, recreation, and the necessary amount of sleep, and she should keep a serene mind. Her doctor's directions should be followed if she is to conserve her general health. Her health should determine her baby's health.

In these days of progressive thinking the modern young mother avails herself of knowledge concerning the care of baby's gums and teeth. The experienced mother knows that at six months the infant gets his first teeth. Some-

times the coming of these first teeth annoys the little creature, and his gums may become red, painful, and even swollen. But, as a rule, these symptoms do not appear. After the sixth month, every few months, more teeth come through the gums, and baby keeps on acquiring his allotted teeth until he is about twenty-two months or even two years old. He now has twenty teeth, ten uppers and ten lowers.

It so happens that nature wants baby to keep these twenty teeth until about the age of six years. Do you think, as many do, that baby's first teeth do not count for much, because another set of teeth is coming? Do you think that the beginning of decay in baby's teeth does not matter much, even though later the teeth become abscessed? Do you think that baby's irregular teeth are not a contributing factor in promoting dental decay? Do you think that a very young child can neglect correct mouth habits without suffering the consequences?

It is the acceptance of such erroneous beliefs that is, in a great measure, responsible for preventable dental decay—not to mention the possible interference with the growth and appearance of the so-called permanent or second set of teeth.

Every parent should know that the twenty baby teeth should be retained until the second set of teeth is ready to come through the gums. Yes, baby teeth should be filled if the decay has not progressed beyond repair. The wise plan is to detect decay when it has started. The smallest hole in a baby tooth should be filled.

Do you think that any child is too young to learn and to practice hygiene

of the mouth? No! The younger the child, the easier it is to establish a daily dental health habit. I mean that the child of three, for instance, is not too young to be taught how to use the toothbrush. We should never scold nor threaten a child if we want to teach him the art and the habit of tooth-brushing. Scolding and threatening are not so effectual in the long run as teaching through your own example. Let him see you brush your own teeth at regular intervals and he will want to imitate you. He will take pride in this accomplishment. Children resent being forced to do anything, even though it be "for their own good," as we say.

Do you think that you as a believer in modern efficiency can afford to side-step the consequences of indifferent attention to your *own* teeth? I am talking about the grown-ups now. Do you realize that a filling in time not only saves the tooth, but may save you days of suffering? And isn't it true that no man nor woman is fully efficient when mouth negligence becomes a painful and money-losing proposition? I have seen instances of high-salaried business executives who have lost valuable time because they let that little toothache go. And, by the way, a toothache does not take care of itself, and a hole in your tooth does not heal like a cut on your finger.

Do you think it is wiser to *cure* a tooth, or do you think it is more sensible to *care* for it so as to prevent the *necessity* for cure? I am sure that if at this moment you could answer me over the air, you would undoubtedly say that you believe in prevention.

Washing the mouth and brushing the teeth daily, regular visits to the dentist

for preventive treatment, these are all included under the heading *Care*. In the category of *Cure* are listed the treatment of abscesses, extraction of teeth, making and supplying artificial teeth, and many other dental operations.

What I have attempted to do has been to point out to my radio audience that good health can be achieved through *right thinking* at the *right time*. I hope I have made it clear that what I mean by right thinking at the right time is intelligent thinking all the time. This does not mean that you are to think *all* the time about your teeth. The chances are that the less your mind dwells on future tooth trouble, the less tooth trouble you will have. But it does mean daily hygiene, immediate attention when pain starts, and regular examination of the mouth and teeth as a measure of prevention.

Also, I have stressed the importance of prenatal care. The expectant mother

must remember that on her good health depends the health of her coming baby's teeth and gums. Perhaps I have surprised some of my listeners by the importance I lay on the most scrupulous care of the child's first teeth. I am continually meeting folks who exclaim, "What? Have a little child's first teeth filled when very soon he is to lose them for a second set?" My answer is: "Yes, have any cavities or other trouble with that first set attended to immediately, for the care you give them determines to a very great degree the quality of the second set."

If there were more time, I should like to expand a little on the supreme necessity of establishing right thinking and right mouth-hygiene habits in the minds of our growing children. Thus we fortify our boys and girls against the tooth miseries which ignorance and negligence exact with the years.

111 West 72nd Street.

American Dentistry to Be Expounded In Czechoslovakia

Dr. S. W. A. Franken, Chief of the Dental Department of the Lenox Hill Hospital, left on the S.S. Paris on May 23rd, 1930, at the invitation of the Czechoslovakian Government, to give a

series of lectures at the University of Prague on modern American dentistry and some phases of original surgical technic.



American Dental Association Meeting

Denver, Colorado, July 21-25, 1930

GLENWOOD SPRINGS

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DIGESTS

THERAPEUTICS OF HEAT AND COLD IN DENTAL PRACTICE

By BORIS LEVITT, D.D.S.

According to the author, cold applications have a limited use in dental practice, and their value comes only in the treatment of acute inflammation in its early stages, especially when the inflammation is due to injury and no infection is present.

In non-suppurative swellings cold is of no value. A moderate amount of heat should be used for comfort and to stimulate circulation, thus permitting the elements of the blood to combat the infection, prevent suppuration and bring about resolution.

Suppurative swellings will not be relieved by cold. Moderate heat will make the patient more comfortable and hasten pointing, thus bringing relief by the evacuation of pus at the proper time.

When swellings are of a non-inflammatory nature and the origin is doubtful, neither cold nor heat should be used. The nature of the swelling should first be determined.—*The Dental Cosmos*, May, 1930.

RESUSCITATION

By D. I. JONES, D.D.S.

In dealing with collapse the author states that too much dependence is placed upon injections of camphor, strychnin, epinephrin, etc. Even the

value of pulmotors and other mechanical devices is greatly overrated.

The symptoms of collapse are the cessation of respiration and the failure of the arterial pulse. The primary condition is the failure of the respiratory center, and if the respiration can be improved, then recovery of the heart will quickly follow because of the improved oxygenation of the blood stream.

The patient should be kept warm and in a recumbent position. Artificial respiration by the prone pressure method is employed. This ventilates the lungs, and the blood is forced from the abdomen toward the heart. Inhalation of a mixture of oxygen 90% to 95% and carbon dioxid 10% to 5% is of great value, since carbon dioxid is the normal respiratory stimulant.—*Dental Items of Interest*, May, 1930.

MOTTLED TEETH AMONG THE CHINESE

By BERT G. ANDERSON, D.D.S., and PAUL H. STEVENSON, M.A., M.D.

In North China the occurrence of mottled teeth is very common and, although its incidence is widespread, there are endemic centers in one of which it was found that 100% of the population was affected.

An examination in two localities showed not only that the older age groups show a smaller incidence than the younger, but also that the phe-

nomenon appears in a much milder degree. From a general consideration of mottled enamel it is doubtful that this condition would disappear spontaneously with advancing age.

Consequently the authors believe that mottled enamel is part of a syndrome of constitutional defect, probably of early malnutritional origin. It might be inferred that only a relatively few of those severely affected in youth with mottled teeth reach the older age groups. The need of further study is emphasized.—*The Journal of Dental Research*, April, 1930.

PERIODONTOCLASIA

By THOMAS J. COOK, D.D.S.

The author found that streptococci isolated from deep pockets and infected investing tissues of patients suffering from periodontoclasia, and also from such diseases as iritis, arthritis, etc., when injected into rabbits, produced the same disease in the animals. Consequently he concludes that it is very important to eliminate periodontoclasia in patients suffering from diseases of focal origin.—*The Journal of the American Dental Association*, May, 1930.

Foreign Dental Literature

Edited by JOHN JACOB POSNER, LL.B., D.D.S., New York, N. Y.

CLINICAL RESEARCH AS TO THE SUITABILITY OF SILVER IN ROOT FILLING FROM THE DENTAL UNIVERSITY, BRESLAU

By H. GRETH

This article is very interesting, since it is an effort to solve the problem of root-canal treatment. The advantage claimed for it lies in the fact that a silver wire is used in place of the gutta-percha point. In other respects it follows the technic recently described by Gottlieb, Schwartz, and others.

The usual means of filling root canals consisted in the introduction of an antiseptic paste and the forcing of a gutta-percha point through the material. Of course the preparatory treatment of disinfection and mechanical widening was taken. The gutta-percha

point was intended to be forced to the apex.

The disadvantage of gutta-percha is its lack of stiffness, causing it to crumple on its way to the apex. The usual result is failure to close the apex. This is often the case, despite the fact that the canal has been opened chemically and widened with files. The fact that failure is possible as revealed by the radiograph means that we must still seek another method which is free from all objections.

The demands for an ideal method of root-canal filling are well known. The material itself must not be subject to decomposition, but should possess antiseptic powers. It should be easily introduced and must as easily be removed, if occasion should arise to do so. It must lie close to the canal walls and be bacteria-proof. It must not become

porous and should be free from shrinkage. It must not be irritating and should have no exciting effect on the periapical tissue. Furthermore, it should not discolor tooth substance. It must also be readily visible in the radiograph. Up to the present time no filling material or method fills all these requirements. In fact, the F. D. I. has offered a prize to the one solving this perplexing problem.

It was shown last year by Gottlieb, Schwartz and Stein, after definite biologic control, that metallic silver gave the best results as a root filling. It is used in two forms. The first is Howe's silver solution, and the second silver powder.

In Howe's method the silver oxid solution is pumped into the canal and after several minutes is reduced with a 10% formaldehyd solution. The free silver impregnates and disinfects the root-canal wall as well as the dental tubuli. The remainder of the canal is filled in the usual manner. This method, however, produces unpleasant and irritating symptoms in the periapical tissue. Rickert laid the blame for this on the formalin, and upon the substitution of eugenol he succeeded in avoiding irritation. As a further drawback to Howe's method it was found that it caused a discoloration, which was particularly undesirable, especially in the anterior teeth.

The second method of root-canal filling with silver powder as practiced in Vienna was introduced by Gottlieb and his coworkers. In this method the silver powder is brought to the canal in the form of a paste and worked up into the canal; then dry silver powder is added to the cavity and forced into

the canal. The disadvantage of this method lies in the difficulty attending the placing of the silver, and the patient has to be seated in the chair with his head hanging down in the most uncomfortable sort of position if the root filling is to be placed in the upper jaw.

When the apical portion was filled with silver, the rest of the canal filling followed the usual procedure. If a granuloma was present at the root apex, some of the silver was forced into it. After a time the silver was absorbed, but during its presence it exerted strong germicidal powers, with the destruction of bacteria present. To avoid an excess of silver beyond the apex, Gottlieb has suggested plugging the apex with a piece of ivory.

The advantage of these two methods over those ordinarily employed lies in the strong antiseptic and germicidal action of the silver. Gottlieb showed that a 24-hour culture of streptococcus shaken for a couple of minutes with the silver powder was sterile on the following day.

This property of silver to check the development of vicious organisms, to lessen the virulence of ferments and toxins and also to eliminate them completely was discovered by Nageli, the botanist. The value of silver has been known in medicine for a long time, especially in cases where the silver remained in the organism for a long time.

The value of chemically pure silver is understood and the only difficulty now remaining is a convenient method of its introduction to the tooth. Trebitch has worked out a technic used by the author. The silver powder is employed, as well as points of pure

silver similar to the gutta-percha points. One end is flattened so that it may be easily grasped and forced into the canal. Many years ago Preiswerk used silver points, but he cemented them in place, thereby losing the germicidal action of the silver.

The rubber dam should be placed and the canals thoroughly cleaned and widened. A paste of iodoform chlorophenol mixed with pure silver powder is pumped up into the canal. The silver wire is then inserted and carried to the apex. The pulp chamber is filled with cement.

If for any reason the root filling is to be removed, this may be readily accomplished by chipping away the cement. If a drill is used, the flattened end of the silver point will be burred away and it then becomes almost impossible to extricate the point.

The substitution of a silver point for the usual gutta-percha one is the outstanding improvement of the technic as heretofore carried out. The gutta-percha point is not sterile, while the silver point may be passed through the flame and rendered absolutely sterile, in addition to acting as a sterilizing agent itself.

Clinically this method has proved satisfactory, and if only a record of one hundred and sixty cases has been reported by the writer, the uniform success and excellent results would indicate that here is a method of root-canal treatment which fulfills all the requirements.—*Deutsche Zahnärztliche Wochenschrift*, April 17, 1930.

DISEASE OF THE APICAL PERICEMENTUM AND ITS TREATMENT BY DIATHERMY

By DR. ERICH FEILER, Frankfort-on-Main, Germany

Considerable interest has been shown in recent years in the treatment of pericementitis by diathermy. There are two types of diathermy, the one for internal use with equal electrodes to generate heat, the other for surgical intervention with one small and one large electrode. The internal diathermy has a definite value in acute infections attended by swelling and pain. It hastens absorption and produces a strong hyperemia. Its success lies in its ability to reduce pain. The inflammatory area is limited and the redness and pain diminished if not entirely eliminated. In these cases it works usually within twenty-four hours. Surgical diathermy has its place in dental surgery and is most frequently employed in removing hypertrophied tissue and growths.

The use of diathermy for infected teeth has been the aim of the writer. He seeks to utilize the bactericidal and disinfecting power of diathermy for infected root canals and also to hasten the absorption of bacterial secretions found in the apical space. Success is recognized through the rapid disappearance of clinical symptoms and the diminution in the size of the apical area of infection as shown radiographically.

First of all, the root canals must be thoroughly sterilized and filled. The author shows that after the canal has been cleaned and filled, lost areas of bone will be restored, it is true, but it will take years. Only two treatments

with diathermy are needed to bring about a similar result in a very short time. Most of the cases treated with diathermy were those which did not respond to ordinary root treatment. In these cases either the canal could not be made free of putrescent odor, or it drained pus or blood, or the tooth remained very painful. In all these cases diathermy gave remarkable results. The gangrenous odor disappears almost as soon as the first treatment has been made. Dressings could be sealed into the tooth, and no discomfort followed.

Diathermy does not act easily through fat or bone tissue, as it penetrates poorly through these tissues. This becomes an advantage, since it permits the action of diathermy on the granulomatous tissue at the root apex without injury to the surrounding structures. It can also exert its beneficial effect on the material within the dental canals without injury to the other healthy near-by tissues. Otherwise diathermy would injure the periodontal membrane or the tooth socket. All clinical experience shows that no danger is to be expected from this source.

The author believes that in diathermy lies the solution of the root-canal problem. The handling of granulomata by diathermy is a great advance over dentistry and its accustomed treatment and presents a possible solution of the problem of focal infection.—*Die Fortschritte der Zahnheilkunde*, May, 1930.

NITROUS OXID

By DR. JIRKA, Saaz, Czechoslovakia

The problem today is one of alleviation and prevention of pain in the field

of dental surgery. Tremendous energy has been brought to bear upon this field, and the greatest stress has been placed on local anesthesia. Nitrous oxid has not had the extensive application which its great value justifies. In fact, G. Fischer, in his work on local anesthesia, does not once mention nitrous oxid. The greatest advance in the field of nitrous oxid anesthesia has been made in the United States. It is the author's opinion that in America few exceptions are made, and that this general anesthetic is administered to nearly all patients alike. The outstanding field for nitrous oxid is in those cases of inflammation within the mouth where it would be inadvisable to insert a needle. It is safe for youngsters as well as old folks. Weakminded, hysterical and oversensitive people are best handled under a general anesthetic. Even in diseases of the heart, kidneys and blood-vessels nitrous oxid is available. It is of exceptional value also in those instances of trismus and infections where pus is present. This general anesthetic should not be used in patients with asthma, emphysema of the lungs, heart insufficiency, or where there is any mechanical difficulty in breathing.

Of all general anesthetics nitrous oxid is the safest, and there are instances of over a million administrations without a fatality. A short time after nitrous oxid has been given to the patient, he is ready to go home and have his usual meal. This is not the case following ether or chloroform.—*Deutsche Zahnärztliche Wochenschrift*, April, 1930.

THE FIXATION OF LOOSE TEETH IN PYORRHEA

By DR. BERNHARD GOTTLIEB, Vienna,
Austria

In certain cases of pyorrhea, fixation has been resorted to in order to hold the six anterior teeth in position. Fixed appliances are the ones usually employed. The thing to bear in mind in making these appliances is the possibility of bone resorption of the supporting teeth. It is a difficult technical problem to restore the front teeth, whether the periodontal membrane is normal or diseased. This is due to the necessary fixation of the abutment teeth.

Permanent fixation is not favored by the author because of the unhygienic character of such an appliance. In time there is an increasing destruction about the abutment teeth, which may extend

to the neighboring teeth with added damage. Of the various methods of holding the six anterior teeth each has its advantage. Where the teeth are at all firm, it is advisable to employ a type of bridge which avoids the absolute fixation of bridge and teeth.

In cases where the six anteriors are already loose or where they are expected to loosen, it becomes necessary to fix them permanently with a bridge or an appliance. The writer mentions also that as he looks back over the failures in bridgework, he finds that they were invariably of the fixed type. Sometimes a removable bridge actually holds the teeth as immovable as if it were fixed. The full cast crown is the most useful form of abutment, as it does not require devitalization. It is important to examine the abutment teeth regularly, for they are subject to caries just like vital teeth.—*Die Fortschritte der Zahnheilkunde*, May, 1930.



DENTAL ECONOMICS

Obsolescence—As It Affects the Field of Dentistry

By CARLETON CLEVELAND, D.D.S., Highland Park, Ill.

"She was a wonder, and nothing less!
Colts grew horses, beards turned gray,
Deacon and deaconess dropped away;
Children and grandchildren—where were they?
But there stood the stout old one-hoss shay
As fresh as on Lisbon-earthquake-day!"

It is all very well for the Deacon's "wonderful one-hoss shay" to have run "a hundred years to a day," but present-day dental equipment does not seem to have been "built in such a logical way." Times have changed somewhat since "the terrible earthquake day," and we find the types and styles of equipment as well as methods of operative procedure and principles of practice undergoing constant and phenomenal changes, thus bringing a little closer home the theory of obsolescence which has convulsed the commercial and industrial fields during the past few years.

We are living in a period of constant change. In the dental field new ideas are thought out for the ease and comfort of operator and patient alike. Were this not so we might still be pushing a foot-engine, while our patients tried to hit the little round knob that stuck up in the center of the old-style "tin-can" spittoon every time we said "m-hm." We might still be guessing whether it was the molar or the bicuspid that had the blind abscess.

Indeed, obsolescence, though not so aggressive as in the commercial and in-

dustrial fields, has made itself felt in the field of dentistry. It can be truthfully said that the remarkable strides made in the development and perfection of dental equipment during the last quarter of a century—yes, even during the last decade or less—have had on the dental field an effect similar, though in less marked degree, to that in the manufacturing industry. Actually there is much second-hand junk on the premises.

Dump-heaps, metaphorically speaking, are quite common around industrial plants. The consensus of opinion is that out-of-date equipment is better outside an industrial plant than inside. It must give way to more modern and improved methods and equipment. This scrapped machinery is really a monument to this advanced modern age, and it tells an eloquent story of obsolescence.

So, too, the alert, progressive practitioner of dentistry realizes that he must keep abreast of the times, that he must familiarize himself with the improvements and developments that are continually being thought out and devised for the benefit of the dental practitioner. He will study and acquaint himself with the latest thought advanced by his professional colleagues on operative and prosthetic procedure, as well as the newer discoveries in the fields of anesthesia, materia medica,

x-ray, pathology, diagnosis and treatment.

As a matter of fact, obsolescence applies not only to equipment—the operating chair, the fountain cuspidor, the cabinet and its contents—but also to the scientific principles of practice and methods of office management. Yes, even ideas themselves suffer from obsolescence! It might almost be said that the entire curriculum of dentistry, its practice and office management, has undergone a complete revolution during the lifetime of the average practitioner of the present day.

In spite of changed means and methods some dentists will retain offices in buildings long since classed as obsolete, buildings with uninviting entrances, antique elevators or rickety old staircases. Year after year they will remain tenants of such premises, generally because the rent is a little lower. They will proudly boast that they "have been right here for thirty years, come next May." They will even say that "this place is good enough for anybody," and "if they don't want to come here, they can go where they please." The sad joke is that generally this is just what happens. Patients have a way of going "where they please"—to the dentist maintaining a more modernly equipped and up-to-date office—while Dr. Back-number sits at his window and wonders why Mrs. Smith is going into the new Professional Building across the street, or what has happened to the little Jones boy on whom he had started some orthodontic work.

It is safe to say that the financial decay of many an able practitioner of dentistry may be traced directly to the fact that he has not kept up with the

march of progress—that he remained in an office he should have vacated years before, adhered to ancient methods and retained antiquated equipment.

The grave mistake is often made of placing the wrong value on so-called assets, that is, classifying things and conditions as assets when in reality they are decided liabilities. To be sure, no hard and fast rule can be formulated to cover what constitutes obsolescence in all cases, but the opinion may be advanced that no piece of equipment has an economic value when it too frequently needs costly repairs. When the cost of maintaining old equipment in working order is considerably greater than would be the repair cost on new equipment, then the old equipment has ceased to be of value.

To be sure, the replacement of old equipment with new does present a problem—the problem of the necessary cash. And yet such expenditures should never be looked upon as expense items; rather should they be considered as investments—investments that pay for themselves in the savings of repair bills, in better work, in savings of stress and strain on the nervous systems of patient and operator, and in the satisfaction of knowing that one is keeping up with the march of progress. The difficulty of meeting the cost of replacement can be considerably reduced if one will create a little fund for meeting obsolescence. This may be started at any time, and if a little is added to it regularly, every week or every month, the financial strain which otherwise might accompany the rejuvenation process will scarcely be felt.

Although antiques are sometimes considered of great value, they can hardly

hold their own when measured for economic efficiency against more modern outfits. Antiquated dental equipment has no more place in the modern dental office than has the cotton gin of Eli Whitney in the present-day cotton industry. The sooner outgrown equipment and old-fashioned methods are re-

placed by better and more up-to-date appliances, appurtenances and practices, the sooner will the losses caused by obsolescence be overcome and the profits of modernization and advancement be realized.

708 West Park Avenue



[DEMAND VS. NEED]

The demand for service must not be confused with the need for it. The need for dental service is universal. The demand for it is far less than the need. Some persons live in towns or villages where dentists are few or are inaccessible. Some persons who live within a stone's throw of a dentist do not think they need to go to him unless they have a toothache which is not relieved by something bought from a drugstore or a bootlegger. Many other persons buy far less dental service than they would like because they think it costs more than they can afford.

—DAVIS.

PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Reply to A. A. L. (May).—In the May issue of THE DENTAL DIGEST A. A. L. asked for the cause of a patient's jaw becoming locked so that it will not open more than half an inch.

I think that without doubt the condition is caused by a weakening of the ligaments which hold the cartilage in the temporomandibular joint in place. This allows it to slip out of position and become wedged between the head of the condyle and the side of the glenoid fossa in such a position that it prevents opening of the mouth.

Why not try having the patient wear a four-tail bandage or some appliance to keep the teeth in occlusion at night?

If the condition cannot be corrected in this way and continues to give enough trouble to warrant it, an x-ray examination will show the position of the cartilage when it is out of place, and an operation can be performed to remove the cartilage.

I have had several cases very similar to the one described. All cleared up with the use of splints, bandages, etc., except one, which became so annoying to the patient that the cartilage had to be removed. This was done about three

years ago and was a success in every way.

R. C. M.

Reply to A. A. L. (May).—I notice in the May issue of THE DENTAL DIGEST that A. A. L. asks about a young lady with a partial or temporary ankylosis and a clicking sound. In a number of cases I have had, I finally felt that it was due to a lack of spinal fluid and advised osteopathic treatment for such stimulation, and the trouble was really relieved by that treatment of the massage of the nerves of the neck. In each of my cases the mouth was negative. I hope this will prove of some benefit to you.

W. L. N.

Reply to L. C. S. (March).—Answering L. C. S. in the March issue of THE DENTAL DIGEST, I knew of a somewhat similar case—a dark-complexioned woman—x-ray producing dark areas where exposed, only to find out later that the woman had been using bleaching creams to make her face lighter and the x-ray exposures reproduced the original color. Continued

application of the bleaching cream gradually returned the tissue to the color it was before the x-ray exposure.

E. C. N.

Editor, Practical Hints:

I have a peculiar case which I think is true tic douloureux. This woman is single, 33 years of age. About four years ago an impacted left mandibular third molar was x-rayed and found to be deep and badly impacted, with pains in that region, in the ear and in the side of the neck. The pains grew worse and more severe, and about two years ago she had this molar removed, thinking this would give relief. No relief has been gained and, in fact, the pains have had a wider range. They seem to start in the mandibular third molar region and radiate through that half of her face and scalp. Then, she says, they drop; that is, they seem to go down her arm (inside of arm) and stop in the abdomen. The next day her abdomen is often quite sore to the touch of her clothing. Sometimes these pains extend to the legs before they quit.

If you could give me any light on a case like this, I wish you would. A physician told me to put 10 or 15 drops of trethylene on gauze and have her inhale it. If this did not relieve the pain, it would show that the fifth nerve was not the cause.

Can you tell me anything about this preparation? I have never heard of its use in any of the dental magazines. What is its composition, use and action? Druggists whom I have asked about it have never heard of it.

O. E. B.

ANSWER.—The case does not show

the symptoms of tic douloureux. This disease is characterized by spasms accompanied by excruciating pain of a few minutes' duration. The pain is confined to the fifth nerve, and irritation of a "trigger zone" is usually the initial cause. The attacks at first may be a long time apart, but, as a rule, they gradually come closer and closer together. Either the injection of alcohol or the removal of the ganglion is an accepted method of treatment.

In *The Journal of the American Dental Association* for February 1930 Schultz mentions the use of trichlorethylene and the technic of administration. He warns that, during the administration, the patient should be under competent supervision.

Editor, Practical Hints:

I should like to have your opinion as to whether or not all impacted teeth are vital. I have discussed this question with several dentists, and the opinions are quite divided.

H. J. V.

ANSWER.—Our opinion is that impacted teeth are vital provided that there is no pathologic condition around the end of the root. We have seen a number of cases where impacted cuspids were drawn down and moved into place by orthodontists and were vital.

Of course it is impossible to state that all impacted teeth are vital; in fact, they probably are not, but we believe that in the majority of cases they are.

Editor, Practical Hints:

Will you inform me as to what is the best way to prevent or eliminate

pain after extraction with local anesthesia either by infiltration or by pressure? In an ordinary case, what is the best injection?

P. C.

ANSWER.—Post-operative pain is not always due to the anesthetic but at times to the trauma of the extraction, some of which it is impossible to avoid. As a rule, the best injection to use is the conduction, especially if there is inflammation, since infiltration is liable to force the infection more deeply into the tissue.

Also, a great many men claim that infiltration lowers the vitality of the area and consequently permits the infection to gain a stronger hold. It sometimes prevents the formation of a blood clot, which of course is nature's method of caring for the wound and is the basis of the healing process.

Editor, Practical Hints:

A patient reported on March 19th with a history of arthritis. All teeth present were tested for vitality—all showing vitality, but in varying degrees.

The amalgam granules (or what appeared to be amalgam granules) in the left lower bicuspid area were partially removed. One week later the patient began to complain of a roaring noise in the left ear.

The patient reports that the physician maintains that the condition is due to infected teeth or tonsils, and that the tonsils are normal.

Would you advise the extraction of any teeth?

J. M. W.

ANSWER.—Granting that the roaring

sound is a symptom of infection and granting that the tonsils are normal, it does not mean that the teeth are the only source of infection left. There are the sinuses, the gall-bladder, the appendix and any number of other places that might be the source of infection.

To extract vital teeth merely because the physician thinks that teeth and tonsils are the only organs that can cause trouble would be pretty close to malpractice. One thing should be borne in mind, that is, that in some cases pulps undergoing degeneration will respond to a vitality test more strongly than normal pulps. It would be advisable to go very slowly as far as extraction is concerned.

Editor, Practical Hints:

I shall appreciate some reliable advice regarding the care of small occlusal pit cavities in second and third molars.

Very often these occur with patients who have spent considerable money on other work in the mouth, and they would be considered people of moderate means or less. What in the way of an alloy can be satisfactorily inserted? I know that small inlays can be made and also foils inserted. These cost more to do them right and too often are almost impossible to do right in every sense of the word.

Perhaps it can be explained to the right patient that he can expect a limited amount of service from the alloys, and later foils or inlays are advised. Also, you will later on be more familiar with the habits of your patient and so be more able to select a material.

However, this is where I need some

help. I want to feel that these mouths for which I am responsible will remain in a high degree of health and soundness.

D. W. K.

ANSWER.—Probably the best way to handle pit fissures in second and third molars is to remove all decay carefully, extending the pits and fissures to the end. Then treat thoroughly with silver nitrate—the Howe method is probably the best—and fill with a high-grade alloy. If the decay has been thoroughly removed and the dentin impregnated with silver nitrate—two or three applications are advisable—little future difficulty will be experienced.

Editor, Practical Hints:

The patient is a young married woman with lower incisors painful, a constant ache, not severe but annoying, with no signs of decay and not particularly sensitive to hot or cold but

slightly sore on tapping. She says that, while getting a facial a few days before, the vibrator was not in good condition and the operator monkeyed with it so much that the patient finally asked the operator not to use it, but the operator said it was all right. Finally the patient got a bad shock on the chin about even with the end of the roots of the incisors and blames the ache in them to this shock. Transillumination shows some congestion, vessels enlarged, very plainly under the light. Do you think the shock from the vibrator would cause this trouble? Also, what would you advise as to treatment?

H. G. M.

ANSWER.—It would be a good plan to test out the vitality of the lower incisors, since the symptoms you describe would seem to indicate that they were non-vital. It is doubtful whether the electric shock caused the death of the pulp, but it might have started up a condition that has been dormant for some time.



DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All communications should be addressed to Elsie Pierce, care of
THE DENTAL DIGEST, 220 West 42d Street, New York, N. Y.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT-CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR GREATER EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE. YOU MAY HELP MANY GIRLS WHO ARE BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. PERHAPS YOU NEED HELP NOW. WRITE TO ELSIE PIERCE—SHE WILL HELP YOU.

Dear Miss Pierce:

I expect to graduate from a general course at high school in February, 1931, and should like to specialize in dental hygiene. Perhaps you can suggest what school would have the most complete course, and also whether it would be advisable to include a secretarial course. Any information you can give me will be greatly appreciated.

G. K., Bayside, N. Y.

ANSWER.—We believe that all the schools for dental hygiene training have comprehensive courses. It is a matter of choice as to whether you wish to attend a school near home or in another state.

If you will apply to the Dental Hygiene School of Columbia University, you will be given every detail about their course. Courses are given also at Temple University and the University of Pennsylvania Dental Schools, Philadelphia; Northwestern University, Chicago; the University of

Minnesota, and a number of others. A letter to these schools will bring you first-hand information.

The course begins at the beginning of the school year in September, and in the intervening months between your graduation and this period you might take a secretarial course to great advantage.

Dear Miss Pierce:

I am striving to become efficient in my work as a dental assistant and am in search of a reading list that gives a good foundation as well as advanced study.

I should like to join a society or a club for dental assistants. Will you kindly send me the names and addresses of those near my home?

Any other suggestions you may offer will be greatly appreciated, as my only knowledge is that secured in a month's work. I am only a beginner, as you see.

O. B., Richmond Hill, N. Y.

ANSWER.—The Package Library of the American Dental Association has literature of interest to dental assistants which they send out for a period of time at a nominal cost. Address the American Dental Association, Librarian, 58 East Washington Street, Chicago, Ill. Supplementary to this reading matter we suggest simple textbooks on bacteriology and anatomy, especially concentrating on the section of head anatomy. You can get these books at your public library, such as are used for high-school students. Literature on oral hygiene, first aid and office management also will be to your advantage. The dental magazines contain much reading matter that will help you. Select those articles that treat of the type of work done in your office, or in which your employer specializes.

Regarding a society that you might join, there are two, one in New York and one in Brooklyn. A letter to Miss Mary Tuck, c/o Dr. S. R. Eolis, Times Bldg., New York, or to Miss Frances Shea, c/o Dr. C. M. McNeely, 1 Nevins Street, Brooklyn, N. Y., will bring you information about each, and you can decide which one to join. They are both educational in their plan.

It takes time to become efficient, so do not become discouraged, but be observant of your employer's methods of procedure and make up your mind to remember his instructions. Observation and concentration, plus a willingness to do every task cheerfully, will help you to become capable in your service to the dentist and his patients.

ciation of the "dental nurse," and when I read a letter from one signed "Puzzled," I simply could not refrain, as I cannot understand a dentist who has not the vision to see what a wonderful help his assistant could be to him if he only gave her the confidence and allowed her the professional attitude to which she is entitled in his office. Poor fellow, he is to be pitied!

I have been in practice for fifteen years and wish to say in appreciation that I can readily attribute 50% of any success I have enjoyed to the cooperation of my assistants. I should like to enlarge on this subject, but fear I would use too much of your valuable space, yet I could not refrain from countering such a foolish dentist's attitude and expressing my appreciation of the dental nurses as a whole.

Let me congratulate you on your fine corner in THE DENTAL DIGEST.

Dr. A. H. B., British Columbia.

We deeply appreciate this tribute to the dental assistants by a member of the dental profession of British Columbia. It should make our readers very happy to know that there are members of the dental profession who are so ready and willing to give credit where credit is due. Confidence well placed is always a benefit, and we agree that professional latitude is essential for efficient service, provided that in the first place the dentist chooses wisely the woman who is to help him in his work. All that follows depends upon this first move, we believe.

Dear Miss Pierce:

Often I have felt a desire to drop you a few lines to express my appre-

Dear Miss Pierce:

You may print this or not, but this

is the experience of one busy dentist over a period of two years.

Does Miss E. M. of Michigan realize how few "efficient" office assistants are available? Why should a dentist pay a high wage until a girl has proved her worth? The writer has had four girls in the last two years and the results follow:

No. 1. Averaged two days a week out in the three months' service. Late about two days out of ten. Began sighing around 3:00 p. m. so that patients noticed it. Always ill.

No. 2. Juggled my accounts into her own pocket to about \$300.00 in five months. A marked bill found in her pocketbook ended her service.

No. 3. Dirty finger-nails. Could not keep books and very indifferent in general, read novels, etc.

No. 4. Came well (?) recommended. With two years' experience could not develop x-rays, could not get the proper shade on silicates, nor do a thing when she was told. Made continual trips out of the office to return with her gown permeated with smoke. Entertained seven girl friends in one day; then without notice was married.

Three of these four are patients in the office now, so I do not feel that it is my fault. A kindly feeling does not run a dental office. The difficulty of breaking a new girl in is known only to one who has done it. This may

throw some light on Miss E. M.'s way.
Dr. F. G. P., Mass.

We truly sympathize with Dr. F. G. P. He seems to have played in hard luck. May we suggest that the next assistant he selects be not a patient. Experience has demonstrated that patients and friends make poor employees in many instances.

May we also suggest that he select a woman with some experience and with an educated background, not necessarily in dental matters but with sufficient judgment and poise and understanding to enable her to adapt herself quickly to the service required. Of course such a person will not work for a pittance, as her talents will serve her in other fields of activity where she can be certain of a satisfactory wage. We believe that there are many educated women who would be glad to serve the dental profession if they could be assured commensurate returns for their services, and we are quite certain that many members of the dental profession would be infinitely better off, financially and professionally, if they would engage the services of such women.

A word to the assistants. Take heed of all the detrimental things the above-mentioned four assistants were guilty of perpetrating, and resolve that for these none of you shall be found responsible.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

The Educational and Efficiency Society for Dental Assistants, First District, New York, Inc., brought to a close another year of educational activi-

ties when the annual meeting was held at the Academy of Medicine, New York, on May 13, 1930.

The reports of the officers and committee chairmen were given and the following were elected and installed in office: President, Elizabeth V. Shoemaker; Vice-President, Mary A. O'Connor; Corresponding Secretary, Mary S. Tuck; Recording Secretary, Gertrude I. Romaine; Registrar, Gertrude Gehm.

During the past season the Society has conducted classes on sterilization, secretarial assistance, x-ray technic, dental anatomy and tooth carving, and parliamentary procedure.

The Clinic Club, meeting regularly each month, has presented lectures by authorities on the various phases of dental assisting and dental office procedure. Clinics have been arranged and demonstrated before the Better Dentistry Meeting of the First and Second District Dental Societies, the Kings County Dental Society, the Allied Dental Council in New York, the Valley District Dental Society, Springfield, Mass., and the Connecticut State Dental Society, Stamford, Conn.

It is the purpose of the Club, through

these lectures and clinics, to analyze the work of the dental assistant, evolving improved methods of procedure, and to spread education in this aspect of dental office conduct.

The Library has been augmented and now contains many valuable articles culled from the dental press, as well as books and pictures on dental history. These contents are available to members of the Society at all times and may be secured by addressing the President, Mrs. E. V. Shoemaker, Kew Plaza, Kew Gardens, L. I.

The Society meets regularly on the second Tuesday evening of each month, October to May, inclusive, at the Academy of Medicine, 2 East 103rd Street, New York. Dental assistants employed in ethical dental offices are invited to become members and to share in the educational advantages so derived. The sessions will be continued with the October meeting, when a symposium on dental assisting will be presented.

A cordial invitation to attend the meetings of the Society is extended to the members of the dental profession and to their assistants.



BOOKS RECEIVED

A BOOK MAY BE AS GREAT A THING AS A BATTLE—DISRAELI

Dental Formulary, by Hermann Prinz, A.M., D.D.S., M.D., Sc.D., D.M.D. (Cologne), Professor of Materia Medica and Therapeutics, The Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania, Philadelphia, Pa.

This is the fourth edition of this useful work, and it has been thoroughly revised and brought up to date. It is a mine of practical information and should be available to every dentist. In fact, any one connected with the practice of dentistry will find it valuable. It is "a practical guide for the preparation of chemical and technical compounds and accessories as used in the office and laboratory by the dental practitioner, with an index to oral diseases and their treatment."

351 pp., and index. Philadelphia, Pa.: Lea & Febiger, 1930.—A. M. J.

Index of the Periodical Dental Literature, for the Five Years, 1896-1900, compiled by Arthur D. Black, A.M., M.D., D.D.S., Sc.D.

This is the ninth volume of the Index, and gradually the enormous task is being accomplished. There now remains only the gap from 1901 to 1910 to be filled in. Seventy-eight years of dental literature have been covered and

the work will remain as an everlasting memorial to the compiler. Any man who has attempted to look up the past literature on any subject in this field will appreciate the value of this work, and the thoroughness of its cross-index has greatly increased its worth.

591 pp. Buffalo, N. Y.: Dental Index Bureau, 1930.—A. M. J.

Those Teeth of Yours, A Popular Guide to Better Teeth, by J. Menzies Campbell, L.D.S., D.D.S., F.R.S.E., F.I.C.D.

This book is a most creditable effort to place before the laity certain facts that will tend to promote better teeth in the generations to come, and help to ease the dental troubles of those now on earth.

After a short, interesting description of the history of dentistry and of the teeth and their surrounding parts the author enters into the discussion of the cause of caries, laying special stress on diet and the vitamins. He clearly points out the advantages of periodic visits to the dentist and the filling of cavities while they are small. Chapters on pyorrhea, the extraction of teeth and the insertion of artificial dentures follow.

The section on children's teeth is probably the most important, and might

well have been given a more prominent position. The statement that "the diet of the expectant mother is the alpha and omega of preventive dentistry" is an excellent precept.

The book is concluded with *Teeth in Relation to Health* and *The Claims of Dentistry as a Career*.

This work is worthy of wide distribution and as an aid in combating

the prevalence of caries with its attendant ills should receive every encouragement, for no progress can be made except through the enlightenment of the public by means of sane and authoritative information from professional sources.

141 pp., with 17 illustrations. Messrs. William Heinemann, 99 Great Russell Street, London, W. C. 1—1929.



EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

We should have built bigger and better jails before the passage of the dry law.

Henry Ford is liable to go down in history as the man who practically abolished the horsefly.

(Bald Man)—Do you give a guaranty with this hair-restorer?

(Druggist)—Sure we do. We give you a comb.

If burning credit gas in instalment cars over bonded roads is prosperity, this country is pretty darned prosperous.

(Friend)—What's the matter, Oscar—you look so thin and starved—has something terrible happened?

(Oscar)—Yes, dear friend. My wife's on a diet!

Someone asks: "What is the first thing that strikes the rural visitor to New York City?"
"Well, in all probability it is a taxi."

(Wife)—This pudding is a sample of the new cook's work. What do you think of it?

(Husband)—I call it mediocre.

(Wife)—Ycur mistake, dear. It's tapioca.

According to the papers, twenty men jumped from an airship quite recently, all at the same moment. And now it is known that they were all Scotchmen, one of them having accidentally dropped a dime which rolled out of the plane.

(Smith)—Have you ever been in a railroad accident?

(Jones)—Sure. Once when in a train going through a tunnel I kissed the father instead of the daughter.

"Why did you stop singing in the choir?"

"Because one day I didn't sing and somebody asked if the organ had been fixed."

KEEPING FATHER BUSY

A curious little boy was watching a car being loaded at the station, and later inquired: "Why do they call it a shipment when it goes in a car and a cargo when it goes in a ship?"

On his return home, an Englishman told the story of an American friend of his who lost his fortune through drink. It took half his fortune to get drunk, and the other half to pay a fine to escape imprisonment.

The world was created in six days, no Senate confirmation being necessary.

A TEXAS AD

Wanted to trade a Brunswick portable victrola for a six-shooter.

(He—at 11 p. m.)—Did you know I could imitate any bird you can name?

(She)—No, I didn't. Can you imitate a homing pigeon?

"Eliza," said a friend of the family to the old-time washerwoman, "have you seen Miss Edith's fiancé?"

"No ma'am," she answered, "it ain't been in the wash yet."

Some people are so darned curious about knowing things, that they give you a pain. Here's a chap who bothered his friends by asking them if they knew the exact number of feathers on a hen? As none of them knew, he just had to count them himself, and finally announced that there are exactly 8,120—no more, no less.

(Willie)—My boss fired me because I took out his car last night.

(Jack)—How did he know you took it out?

(Willie)—I ran over him at an uptown crossing.

Scientists say that the Grand Canyon of Colorado is slowly disappearing, and that there won't be anything left of it in a few million years.

Now, doesn't that kind of news make a fellow sore, just as he is trying to fix up his vacation dates?

LEAVE IT TO ABERDEEN

Once again the "granite city" of Scotland retains the title of "the world's most thrifty city."

Among the contributions of a recent street collection for the city hospitals were:

Eight hundred foreign coins.

Over 200 washers.

Thirty-four buttons.

Tramcar tokens.

Numerous nails and safety pins.

(Colored Customer)—Ah wants a quote of sanctified milk.

(Storekeeper)—What you-all mean is pacified milk.

(Customer)—Look heah, small one, when Ah needs inflammation, Ah'll specify.

FUTURE EVENTS

THE AMERICAN ACADEMY OF PERIODONTOLOGY will hold its seventeenth annual meeting at the Antlers Hotel, Colorado Springs, Colorado, July 17-19, 1930.

CLYDE C. SHERWOOD, *President*
1304 Second Natl. Bank Bldg.,
Toledo, Ohio.
C. H. GRACEY, *Secretary-Treasurer*,
269 Rowena Street, Detroit, Mich.

THE ASSOCIATION OF AMERICAN WOMEN DENTISTS will hold its ninth annual meeting at the Olin Hotel, Denver, Colorado, July 21, 1930.

MILDRED W. DICKERSON, *President*,
1624 I St., N.W., Washington, D. C.
WILHELMINA YERETSKY, *Sec'y-Treas.*,
26 Sheldon Ave., S.E., Grand Rapids, Mich.

THE INTERNATIONAL COLLEGE OF DENTISTS will hold its annual Convocation at the Shirley-Savoy Hotel, Denver, Colorado, July 21-25, 1930. The exact time and place will be posted on the bulletin board of the hotel, as it is desired to hold the Convocation at a time when it will not conflict with any of the meetings of the American Dental Association or any of its affiliated bodies.

LOUIS OTTOFY, D.D.S., *Registrar*,
175 Vernon Terrace, Oakland, Cal.

THE AMERICAN BOARD OF ORTHODONTIA will hold a meeting in Denver, Colorado, following the meeting of the American Dental Association in July.

Those orthodontists who desire to qualify for a certificate from the Board, as outlined in the article entitled *The American Board of Orthodontia*, page 50 of the January issue of the *International Journal of Orthodontia, Oral Surgery and Radiography*, may receive full information and application form from the Secretary of the Board.

ALBERT H. KETCHAM, *President*,
1232 Republic Bldg., Denver, Colo.
OREN A. OLIVER, *Secretary*,
1101 Medical Arts Bldg., Nashville, Tenn.

THE AMERICAN DENTAL ASSISTANTS ASSOCIATION will hold its sixth annual meeting in Denver, Colorado, July 21-25, 1930.

RUTH F. ROGERS, *General Secretary*
Room 803, 223 West Jackson Blvd.
Chicago, Ill.

THE AMERICAN DENTAL HYGIENISTS ASSOCIATION will hold its seventh annual meeting in Denver, Colorado, July 21-25, 1930.

AGNES G. MORRIS, *Secretary*,
886 Main Street,
Bridgeport, Conn.

THE ILLINOIS DEPARTMENT OF REGISTRATION AND EDUCATION will conduct examinations for registration to practice dentistry in Illinois on the following dates:

November 18-21, 1930, at the University of Illinois College of Dentistry, 1838 West Harrison Street, Chicago, Ill.

THE SIXTH GREATER NEW YORK DECEMBER MEETING FOR BETTER DENTISTRY will be held at the Hotel Pennsylvania, New York, December 1-5, 1930.

The committee is preparing a program which will be both interesting and of high scientific value. Among the essayists will be Comm. H. E. Harvey, Norfolk, Va.; Stanley D. Tylman and F. Blaine Rhobothom, Chicago, Ill.; Frank Fox, Philadelphia, Pa.; M. S. Weaver, Cleveland, Ohio; W. J. Chartres, Des Moines, Iowa; V. Kazanjian and E. N. Kent, Boston, Mass.; and W. H. Wright, Pittsburgh, Pa.

The topic discussions will again occupy an important place on the program.

A manufacturers' exhibit will be held in the hotel simultaneously with this meeting.

JOHN T. HANKS, *Chairman*,
CHARLES M. MCNEELY, *Vice-Chairman*.

THE SECOND INTERNATIONAL ORTHODONTIC CONGRESS will be held at the Hotel Great Central, London, England, July 20-24, 1931.

A full and interesting program of papers and demonstrations is anticipated, and a museum is being organized. Suitable entertainment for ladies accompanying members will be arranged. Intending contributors to the activities of the Congress can obtain from the secretaries of their respective orthodontic or dental societies the conditions under which contributions are invited. The Secretary-General (A. C. Lockett, 75 Grosvenor Street, London, W.1) also will be happy to give information on request.

THE DENTAL DIGEST

Information regarding traveling facilities and hotel accommodations may be obtained from the official agents to the Congress, Messrs. Morgan Pope & Co., of 7 St. James's Street, London, S.W.1; 6 Rue Caumartin, Paris; 71 Vanderbilt Avenue, New York; and Messrs. Noel Vester

& Co. (Agents), 44 Unter den Linden, Berlin.

J. H. BABCOCK, *President-General*,
G. NORTHCROFT, *Vice-President General*,
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A. C. LOCKETT, } *Secretaries-General*.
B. M. STEPHENS, }



